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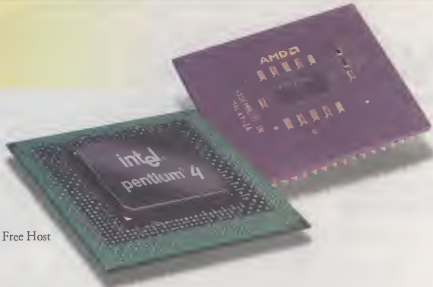


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October Focus: Gateway & HP Roundup

Not long ago, it seemed you couldn't shake a stick without hitting a PC manufacturer. Consumer demand for computers was way up, as was the technology market in general, and everyone wanted a piece of the action. But like the many poorly planned dot coms that folded when the going got tough, many PC makers are gone, and they've taken their promises of free computers and amazing rebates with them.

That doesn't mean you'll have a hard time finding someone to sell you a computer, though. The industry's heavy hitters, such as Hewlett-Packard and Gateway, are still eager to sell. These company's reputations for making quality products and standing behind them provides some peace of mind for consumers who have been burned on a PC offer that turned out to be too good to be true.

This month we look at several packaged systems from Hewlett-Packard and Gateway and discuss some of the things you should consider before buying such a system. And don't miss the Pentium 4 article in the Computer Power Users section. We'll peel back the lid of the P4 to help you get a better idea of what goes on inside the chip that powers your PC. Armed with this knowledge, you're sure to make your next PC purchase a success.

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Before You Buy A Name-Brand System

What You Need To Know

First, the bad news: Contrary to popular opinion from a couple of years ago, packaged PCs are not free. Even worse, most recycled, antiquated PCs sold under the guise of being refurbished are not free. Furthermore, much of the PC sales landscape has changed. Quantex? Gone. MicronPC? Practically given away to privately held Gores Technology Group in the face of an ultra-tight market. eMachines? Still breathing, but the company's ski slope stock chart says it all.

Bad PC buying experiences have recently burned a lot of consumers. But here's the good news: With a little thought and preparedness, you can make sure the next packaged PC you take home provides years of quality service.

Picking A Manufacturer

Fortunately, among the top tier of PC providers, it's almost impossible to find a truly "bad" PC. The technologies involved are all mature enough, and reputable vendors go through so much system and configuration testing that getting stuck with a "lemon," while still possible, is increasingly uncommon.

Of course, there are performance differences between models and brands. Any PC built around a Pentium 4 CPU with 256MB of RAM will almost certainly outperform a Celeron-based machine with 64MB. We won't discuss the merits of one component over another here. It's enough to say that when comparing brands, you should feel safe buying a computer from any of these leading manufacturers: Apple, Compaq, Dell, Gateway, HP, IBM, and MicronPC (although MicronPC's recent acquisition by Gores has yet to reveal itself as a positive or

negative development). Brands like Acer, Sony, and Toshiba have also withstood the tests of time and quality, but their systems tend to focus on niche markets.

Things change, and you don't want to assume that yesteryear's brand boxes still reign supreme. First, visit the company's Web site. Is the content clear and easy to navigate? Are the components current? (You might not be able to judge this at first glance, but comparative examination with other sites should reveal if one vendor is offering substandard specs.) If the vendor lets you custom-order systems on its Web site, are there a broad range of components from which to select, or are you being shoehorned into a handful of pre-built configurations?

"Does the vendor educate you about components?" asks Bryant Hilton, spokesperson for Dell. "Does the support site give you all the specs? Many users want very specific, sometimes technical, information about their systems, both before and after the purchase. A good vendor will make sure this information is easy to access."

Dell boasts a 70% resolution rate, meaning 70% of user support issues are resolved during the first call. Dell maintains that this is twice the industry average. You may want to ask your prospective vendor about their own resolution rate and then cross-reference the statement with first-person accounts from friends and online user groups. Be aware that online postings tend to gravitate toward negative comments.

In the long run, the most important facet of a company's Web site is its support area. You want to look for things like comprehensive FAQ (frequently asked questions) lists, periodically updated file downloads, natural language search tools, and tips on how to optimize performance. Does the vendor offer a prominently displayed phone number to call for support or, if not, are you given a time in which to expect a reply by e-mail?

Also, pay close attention to the warranty. Onsite service for novice or business users during the first year can be a godsend. Some vendors include this in the base price while others charge extra. One-year parts/three-year labor warranties used to be standard, but faced with shrinking profit margins and a slow economy, many vendors are turning to only one year on parts and labor. This offers them an opportunity to push extended warranty options, but beware any plan that goes beyond three years. Hardware that lasts through the first year is likely to keep working for a very long time. The largest danger is obsolescence, and the odds of you wanting to either replace or significantly upgrade your PC within three years are high, so paying for an extended warranty you'll never use is just wasting money.

If you do need hands-on service within your warranty period, be sure to read the fine print and see what kinds of fees you'll be facing. Does the vendor pay shipping for service systems both ways? If so, is this for the first 90 days or only 30? Is your warranty voided if the vendor finds you've installed third-party hardware or software? If you do get stuck with a lemon, how long do you have to return it for a full refund before you're assessed a "restocking fee," and how much is that vendor's restocking charge?

Specs vs. Functionality

It's the perennial question every PC buyer ponders: What configuration do I get? The best answer is to disregard money momentarily,



look six to 12 months into the future, and buy the configuration you'll need at that time.

A good example is the amount of RAM you select. Today, 64MB is still considered sufficient for most systems, but with the release date for Windows XP now having been slated for October, most major vendors have already shifted their configurations to 128MB, the amount recommended by Microsoft. When we asked HP Pavilion product manager Mark Bony whether he felt, as in PG generations past, that users would be well served by doubling Microsoft's recommended RAM count, he replied that such an upgrade should only be necessary for power users and those running multiple large applications simultaneously.

Intel and AMD's race to break the 1GHz barrier in processors seems to have been the last specification milestone most buyers cared about. Today, with 1.3GHz AMD Athlon chips outscoring 1.7GHz Pentium 4s on prominent industry benchmarks, users are growing increasingly unconcerned about numbers and asking instead if a configuration is well-suited to a given application set. Any vendor can build an attractive case and stuff it with standard parts. The trick is to optimize the system as a whole to address the user's needs.

"The PC market is becoming more and more commoditized," says HP's Mark Bony, offering one example. "So how do we differentiate ourselves? One example is with digital imaging. All our PCs are loaded now with HP Photo Center. This is a dedicated button on the keyboard that launches a suite of products [that are] like a virtual digital darkroom. Imaging is something we feel most of our users want to do."

Most vendors now try to offer similar hard/software combination conveniences. Compaq, for example, offers a Multimedia Zone on its keyboards, a set of one-touch controls for CD and volume manipulation. Dell offers a button, either mounted on the chassis or keyboard depending on the model, that initiates the Dell Solutions Center, putting learning and support links right in front of the user.

Talking Software

True, these are little more than convenient shortcuts. There are other, almost-as-quick

ways to accomplish the same tasks. You may want to pay more attention to a vendor's software bundle than the hot keys used to access that bundle.

Name brand manufacturers typically package numerous software titles with their systems, starting with Windows and working down to little games. You may encounter statements like "Includes software worth \$895!" Remember that software isn't worth a dime if you never use it.

And research the titles. You may need a word processor and spreadsheet with your new box, but there's a huge difference between Microsoft Works and Microsoft Office, both in price and usefulness. Do you really care about an offer for three months of free MSN if you already have an Internet provider? Find out what an equivalent system would cost without any software (save perhaps Windows). If you're paying a premium for the titles, ask yourself if the price difference is yielding a sufficient value for your needs.



Dell's cutting-edge Dimension 8100 series features Intel's latest Pentium 4 processor, Rambus memory, and a large screen monitor. Higher-end configurations include two years of on-site service. Note that finding peripheral drives with black or silver faces may be difficult.

Where To Buy?

There are two channels through which to buy a name brand box: direct and retail. Direct means purchasing the system directly from the manufacturer, most often through the company's Web site, although many systems are still sold via mail order catalog or by speaking with inside sales reps over the phone. Retail involves visiting a physical storefront and picking a system off the shelf. Most retail systems are sold through mass merchants like CompUSA or Best Buy, as local dealers tend to sell house-built "clones."

There are two advantages to buying retail. First, there's no wait while someone builds your system. Just put it in the cart and take it home. Second, if there is a problem, you have

a face and a place to revisit and get your situation resolved personally. Unfortunately, in part because mass merchants sell such a wide diversity of brands and products, salespeople are notorious for being under-informed about specific models or technologies. In practice, inside salespeople with direct vendors are better in this regard, but generally not by much. It usually falls to the buyer to be informed about the products before talking to a sales rep.

The chief advantage of buying direct is flexibility. You have greater selection of models, plus the ability to customize those models. If a retailer has a service department, it will likely also be able to customize your system. However, this entails delays and higher upgrade costs than if you ordered direct.

As with vendors themselves, take a careful look at any retail merchant's service track record. Do customers experience problems after upgrades or repairs? Is the staff able to answer questions? Worst of all, will you be instructed to merely deal directly with the manufacturer once you get the system home?

You are likely to find more "package deal" configurations through mass merchants, such

as a system bundled with a monitor and printer. This may look like a good value on the outside, but beware of these add-on components being of inferior quality. Getting a 17-inch monitor for only an extra \$100 may sound great, but actually look at the monitor for signs of poor color or flickering. Is the bundled printer

what you need or just a rock-bottom cheapie unsuitable for printing color photos?

Name brand PCs are not the proprietary, overpriced monsters they were a few years ago. They're aggressively priced, especially now that vendors are trying to liquidate excess inventory. In this cutthroat market, everyone knows that customer satisfaction is the key to survival, so your concerns are likely to be handled promptly and effectively. You'll probably never find a better time than now to invest in a name brand system; just be sure to do your homework and pick the best one. [E]

by William Van Winkle

Look What Came Out Of The Gateway

A Roundup Of Gateway's Current Systems

If there's one thing we can count on with Gateway desktop systems, it's the fact that the company always tries to add aural and visual punch to the computing experience. Few of its consumer PCs lack decent audio systems or video adapters, especially in the \$1,300 and higher price categories. Built-in Ethernet, front-mounted USB and IEEE 1394 ports, and CD-RW drives round out some pretty impressive amenity lists for home and small-business PCs.

Gateway sent us four desktop systems ranging from \$1,299 to \$2,799. Just to make things interesting, one of them had the new style of Pentium 4 with SDRAM. Another had a 1.4GHz AMD Athlon microprocessor, which added a little competition to the mostly Intel mix. Finally, a 1.4GHz entry-level P4 and a top-of-the-line 1.8GHz system bracketed these PCs with stories all their own.

How We Tested

We gave each Gateway a trial run through common applications, and also through multimedia tasks such as playing DVDs, audio CDs, and a game. For more objective comparisons, we also tested each system with either the 2000 or 2001 versions of BAPCo SYSmark and MadOnion.com's Video and 3DMark benchmark utilities. All this helped us figure out what each system had to offer beyond the specs on paper.

Mainstream PCs

First, we'll take a look at the two mainstream Gateways. Both have 1.4GHz processors and 128MB of RAM, but the similarities end there.

Performance 1400CS

Even though computer prices are currently dropping like stones, it's still surprising to see Intel's innovative P4 in inexpensive PCs. If

you're looking for a P4 system, but you've been waiting for a reasonable price, read on.

Specifications. Gateway's Performance 1400CS (\$1,299) has a 1.4GHz P4 paired with 128MB of PC800 Rambus memory. PC800 is currently the fastest available RDRAM. The P4 uses a 400MHz frontside bus to exchange data with the RDRAM and has 256KB of on-die, L2 cache memory. This Gateway's motherboard can support up to 2GB of RDRAM in its four sockets (two of which are free), although you can only order this system with a maximum of 512MB.

Gateway bumped up the default hard drive in our test system to a hefty 40GB, 7,200rpm Western Digital Caviar WD400BB. Our Performance 1400CS also had an NEC NR-7700A CD-RW drive with write/rewrite/read speeds of 12X/8X/32X (different than shown). This is a respectably quick drive for burning CD-Rs and CD-RWs.

The CS package installed in our Performance 1400 included an NVIDIA RIVA TNT2 M64 video card, a Linksys 100Mbps Ethernet module, and a Creative Sound Blaster PCI128 sound card. This PC also shipped with a 56Kbps modem and two Cambridge Soundworks GCS300 speakers, one of which had a volume knob and a headphone jack. All of the systems we tested had the Windows Me OS.

Design. The Performance 1400CS comes in a mid-tower case with two front-mounted USB ports and two in the rear. Three of its five 3.5-inch drive bays are unused (one of its access to the front panel), with one of its two 5.25-inch bays open and having front access. There are also two

free PCI slots and plenty of room to reach all of the above.

This Gateway's input devices are typical, but nice nonetheless. Logitech makes its wheel mouse, and its multimedia keyboard has the usual volume, CD, and Internet buttons. Gateway even throws in a microphone.

Performance. We still test systems costing less than \$1,500 with the SYSmark2000, Video2000, and 3DMark2000 benchmark utilities for compatibility reasons. Don't compare the scores from the first two systems in this article against those of the last two systems, as we tested the latter with the new 2001 benchmarks.

This Gateway's SYSmark2000 score of 161 probably best reflects its very good overall speed. It's far faster at Internet Content Creation tasks (186) than Office Productivity tests (144), according to this benchmark.

Older hardware intrudes, though. Despite its 32MB of SDRAM, the RIVA TNT2 M64 shows its age with a 1,969 3DMark2000 score. Quake III Arena only really played smoothly at a maximum resolution of 800 x 600. We would suggest spending the extra \$100 to upgrade to the CL package's 64MB DDR SDRAM ATI RADEON VE for more serious gaming.

Meanwhile, the Cambridge Soundworks speakers made do with resonance chambers instead of a subwoofer. These evoked relatively rich bass tones, without giving up much clarity, for both CD audio tracks and game sounds.

Final Note. In addition to three recovery CDs, the Performance 1400CS comes with Adaptec's Easy CD Creator 4, Norton AntiVirus 2001, and Microsoft Works Suite 2001. This suite includes such titles as MS Word 2001 Standard, Picture It! Publishing 2001 Encarta Encyclopedia Standard 2001, and Money 2001 Standard.

This system is both speedy for the price and expandable. Gamers should spend a little more on graphics and speakers, but the Performance 1400CS is nice as is.

Select 1400CL

Gateway's Select home desktop systems come with Athlon processors, in contrast to



The Performance 1400 CS is a very affordable system.

its Performance line with P4s. We found that the only performance the Select 1400CL gives up is in name.

This fine PC offers a CD-RW drive, sweet digital speakers with a subwoofer, and excellent 3-D graphics. It doesn't have enough expansion slots, but it's otherwise a great buy.

Specifications. The heart of the Select 1400CL (\$1,349) is a 1.4GHz Athlon with 128MB of PC133 SDRAM. Ours had the



The 1.4GHz Athlon in the Select 1400CL is scrappy enough to tussle with P4s several megahertz ahead of itself.

same optional 7,200rpm, 40GB Western Digital WD400BB hard drive as the Performance 1400CS above. Gateway phased out the LG Electronics CED-8080B 8X/4X/32X CD-RW drive that came with our test system (different than shown), so the \$1,349 price we show reflects the 12X/8X/32X minimum CD-RW drive currently offered.

We're not crazy about the Gateway EV700 17-inch monitors that came with the 1.4GHz PCs. These monitors vary in quality, but none we've seen is as sharp in the center as at the edges of the screen. However, we do like the Select 1400CL's ATI RADEON VE 3-D graphics accelerator card. With 64MB of DDR, the RADEON certainly gave us great gameplay in a \$1,349 PC.

The Select 1400CL also has a Linksys 100Mbps Ethernet card, a combination 56Kbps modem and Home Networking card, and an outstanding Boston Acoustics Digital BA735 three-piece sound system (different than shown). One speaker had volume and treble knobs, while the subwoofer had a knob to control its excellent bass.

Design. Gateway's smart mid-tower case doesn't obstruct your access to the three free 3.5-inch drive bays, the one unused 5.25-inch bay, or the open memory slot. One of each type of free bay is accessible from the front, as are two of the four USB ports. The system can

use up to 1GB of SDRAM, but Gateway sells it with a maximum of 512MB.

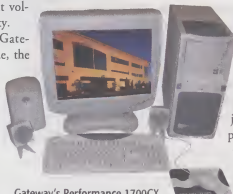
The Select 1400CL's only serious flaw is that all of its PCI slots are full. This limits your upgrade options to internal drives or external USB devices. Of course, you can remove either the modem or Ethernet card if you don't use it to gain a free slot.

Performance. This Gateway's 206 score in SYSmark2000 demonstrates exceptional speed for a sub-\$1,400 system. Again, we tested the 1.7GHz and 1.8GHz PCs below with 2001 versions of these benchmarks, so don't compare the Select 1400CL's scores to theirs.

The RADEON VE video card faltered a little with a 2,074 Video2000 score but came back hard with a category-busting 3,481 rating in 3DMark2000. It rendered fluid 3-D graphics at up to 1,280 x 1,024 resolution in Quake III Arena.

It was a pleasure to funnel CD audio tracks and Quake III's combat sounds through this PC's excellent digital sound system. There's nothing like Bjork's dissonant squalling and jaunty bass keyboards delivered at volumes with digital clarity.

Final word. Like Gateway's Performance line, the Select 1400CL comes with the Microsoft Works Suite 2001, Easy CD Creator 4, Norton AntiVirus 2001, and a raft of other great titles. It also has a three-year hardware warranty with one year of on-site service.



Gateway's Performance 1700CX is one of the first P4 systems we've seen with SDRAM.

make the processor compatible with inexpensive SDRAM.

The Performance 1700CX (\$1,924) is one of the first PCs we've seen that pairs a 1.7GHz P4 with inexpensive PC133 SDRAM. Most reports agree that P4s perform better with Rambus, but Intel hopes SDRAM support will encourage manufacturers to put the P4 into higher-volume mainstream and value PCs.

Specifications. This system's SDRAM is capable of 133MHz operation, but the P4 reads it four times per system clock tick at 100MHz speed (400MHz, in effect). The main benefit of SDRAM support for the buyer is low initial cost and cheap RAM upgrades. Two of the three DIMM slots are open, with a system maximum of 2GB of RAM (512MB maximum from Gateway). Notice that you can add SDRAM modules singly. Rambus designs require matching pairs of RIMMs, a situation similar to the dual SIMMs required in early Pentium systems.

The Performance 1700CX also has a 16X DVD-ROM drive, a 12X/8X/32X CD-RW drive, and a 60GB, 7,200 rpm Quantum Fireball Plus AS hard drive.

Design. Ports, ports, ports. We love having extra ports, especially when they include three IEEE 1394 jacks, one on the front panel. Even better from a utility standpoint, there are a total of six USB ports on this Gateway's mid-tower case, with two right up front where we like them. This PC also

has an integrated 10/100Mbps Intel Ethernet port and a 56Kbps modem.

The Performance 1700CX has the same awesome Boston Acoustics Digital BA735 speakers and 64MB DDR ATI RADEON VE video card as the Select 1400CL above. It uses a Creative Sound Blaster Live! Value card.

Also like the Select 1400CL, this computer's PCI slots are, sadly, completely full. Of course, there are always USB and 1394 devices, along with whatever you can mount in the three open 3.5-inch drive bays, one of which is front-accessible.

Performance. We're repeating ourselves, but this is an important point. The

Performance PCs

The next two systems boast processors fresh out of Intel's bag of tricks. One is the fastest P4 at this writing, the 1.8GHz chip. The other is one of the first to try life without Rambus.

Performance 1700CX

One of the reasons that early P4 systems cost so darn much was because they required Rambus memory. Although the cost of RDRAM has fallen considerably in the past year or so, it's still higher than SDRAM or DDR. Intel developed the i845 Brookdale chipset and a new 478-pin P4 to

SYSMark2001, Video2001, and 3DMark2001 scores of this and the next Gateway system don't compare to the 2000 benchmarks of the previous PCs in this article. That said, the Performance 1700CX's 126 SYSMark2001 rating means it's about 26% faster than the new benchmark's hypothetical baseline PC, which would have a score of 100.

This system also snagged a 2,257 Video2001 rating and a 1,847 3DMark2001 score. Just for kicks, we retested the Performance 1400CS and Select 1400CL with the 2001 version of 3DMark. The Performance 1400CS hung its head with an 849, but the Athlon-based Select 1400CL actually beat this 1.7GHz P4 system with the same video card with 2,015 points. However, the Performance 1700CX felt much more playable at resolutions up to 1,280 x 1,024.

This Gateway's excellent 16X DVD drive played our "X-Men" movie flawlessly. Every type of audio sounded similarly perfect through the BA735 speakers and subwoofer, from a Mono Puff audio CD to the "snick" sound of Logan's claws unseathing.

Final word. This PC has approximately the same great warranty and software package as the previous systems, with the addition of Ravist's CinePlayer 1.0 DVD player. It's certainly fast, but make sure the price savings between it and a similar Rambus P4 system are really worth it to you.

Performance 1800XL

We're really getting familiar with this mid-tower case. In the Performance 1800XL's situation, though, it's packed with champion hardware. Our test system was also surrounded by top-shelf components, such as a flat-panel display (a \$200 option over the standard 19-inch EV910 monitor) and thin, surround sound speakers (\$150 more than the standard Boston Acoustics BA735 setup). Gateway's Performance 1800XL isn't cheap (\$2,799 as configured), but it's an exceptional gaming/home mini-tower system that will fit in tight quarters.

Specifications. Gateway paired a hot 1.8GHz P4—the fastest at this writing—with a top-of-the-line 64MB DDR NVIDIA GeForce 3 graphics accelerator. That sentence alone should exert an irresistible gravitational pull on any gamers out there. The 128MB of PC800 RDRAM backs up the P4, but you can increase it to 2GB if you have the means. Like

the others, though, you can only order this PC with a maximum of 512MB from Gateway.

Like the Performance 1700CX above, this system has a 16X Matsushita DVD-ROM drive stacked above a very useful 12X/8X/32X CD-RW drive from NEC. When you're not watching smooth, fluid movies on DVD, you'll likely be burning audio mix CDs on CD-R. You probably won't leave your house for several seasons.

Finally, 80GB of storage space awaited us on a brisk Western Digital WD800BB, 7,200rpm hard drive. This was a \$50 upgrade over the standard 60GB unit.

Design. A good part of this system's price goes toward its crystal-clear Gateway FPD1510 flat-panel display. The monitor's 15.1-inch viewable area seems a little small, but the 18.1-inch version costs another \$560.

The four optional Boston Acoustics Digital BA7500G speakers are also relatively flat, in keeping



This high-end stunner is a pleasure to use from beginning to end.

with the monitor's example. They have plastic stands, but you can also hang them on your walls. The rear speakers even have cords long enough to make this easy. One speaker puts three volume controls (master, surround, and subwoofer) and a surround balance knob right in front of you, where they belong. Finally, a sizable subwoofer rocks the lower registers, while Dolby Digital support keeps everything real(istic). Paired with this PC's Sound Blaster Live! sound card, this is a choice sound system.

Gateway provided a microphone with this PC, along with four USB ports (two in front) and three 1394 ports (one in front). This system has the same multimedia keyboard as the others. However, the wheel on its Logitech mouse felt like it was rolling through gravel for some reason.

There was one unused PCI slot, two free RIMM slots, and three 3.5-inch drive bays

inside our test system. Its rear panel offered 10/100Mbps Ethernet support and access to the 56Kbps modem.

Performance. You should expect a premium system like this one to spank any application that crosses its path. Its impressive SYSMark2001 benchmark score of 154 is the result of an admittedly artificial test, but there's no doubt that the Performance 1800XL attacks real-world tasks with equal ferocity.

This Gateway is also a fabulous platform for 3-D games. Actually, you don't so much play games on it; you *launch* them. Exceptionally fast Quake III Arena gameplay underscored the GeForce 3's 3DMark2001 score of 5,830. Again, don't confuse these scores with those of systems tested under the 2000-series benchmarks.

We love the optional flat-panel monitor that came with our test system. However, it wastes much of the GeForce 3's potential because it can't display resolutions higher than 1,024 x 768. That's OK for a 15.1-inch display, but it means most of the GeForce's 64MB of video memory goes unused. Of course, with the standard EV910 19-inch monitor, you'll be able to enjoy incredible 3-D fraying at up to 1,600 x 1,200 resolution. (We hooked up the EV910 from the Performance 1700CX to make sure.)

Final word. As configured, the Performance 1800XL looks very striking. A few minutes of hard use will demonstrate that it has the power to back up its appearance. You can save \$350 off our test unit's price with the standard 3-piece sound system and 19-inch CRT monitor, if you like. It has generally the same software package and warranty as the Performance 1700CX above.

Other Systems

These four PCs are only a small part of Gateway's current lineup. Here's a brief look at its budget home systems and business PCs.

Value systems. Gateway's Essential desktop series aims to bring serious muscle to bear on your home or home office tasks. Fortunately, serious muscle doesn't cost much these days.

The Essential 900c (\$799) combines a 900MHz Celeron with 128MB of SDRAM, a 15-inch monitor, and a 48X CD-ROM drive.

On the high end of the Essential line, there's the Essential 1100 Deluxe Digital Photo PC for \$1,357. It comes with

Microsoft's Office XP Small Business productivity suite, an Epson 880 inkjet printer, and even an Intel Pocket PC camera. As for hardware, a 1.1GHz Pentium III, 128MB of SDRAM, and a 20GB hard drive mean that this Essential's standing on solid ground.

Business systems. For the business with full network support, look to Gateway's E Series slimline PCs (\$928 to \$1,428) with 900MHz Celerons or 1GHz Pentium IIIs. The more upscale E4600se Deluxe (\$1,328) and E4600xl Deluxe (\$2,428) contain 1.3GHz and 1.8GHz P4s, respectively.

Deluxe versions of the Athlon-based Select series described above come with Office XP Small Business. The 1.2GHz model starts at \$1,228; the 1.4GHz version is \$1,428. **GS**

by Marty Sems

By The Numbers

Here's a quick reference chart for these Gateways' specifications and test scores. *Note that the specifications with asterisks are results of SYSmark2000, Video2000, and 3Dmark2000 benchmark versions. They cannot be compared to SYSmark2001, Video2001, and 3Dmark2001 version results. Some components listed are optional; see the main article for details.

	Gateway Performance 1400CS	Gateway Select 1400CL	Gateway Performance 1700CX	Gateway Performance 1800XL
Price	\$1,299	\$1,349	\$1,924	\$2,799
Operating System	Windows Me	Windows Me	Windows Me	Windows Me
Processor	1.4GHz Pentium 4	1.4GHz Athlon	1.7GHz Pentium 4	1.8GHz Pentium 4
Bus Speed	400MHz	266MHz	400MHz	400MHz
RAM	128MB PC800 Rambus	128MB PC133 SDRAM	128MB PC133 SDRAM	128MB PC800 Rambus
Graphics Accelerator	NVIDIA RIVA TNT2 Model 64	ATI RADEON VE	ATI RADEON VE	NVIDIA GeForce 3
Video RAM	32MB SDRAM	64MB DDR SDRAM	64MB DDR SDRAM	64MB DDR SDRAM
Optical Drive	12X/8X/32X CD-RW	8X/4X/32X CD-RW (no longer available; 12X/8X/32X minimum)	12X/8X/32X CD-RW; 16X DVD-ROM	12X/8X/32X CD-RW; 16X DVD-ROM
Hard Drive	40GB 7,200rpm	40GB 7,200rpm	60GB 7,200rpm	80GB 7,200rpm
Monitor	17-inch Gateway EV700	17-inch Gateway EV700	19-inch Gateway EV910	15.1-inch Gateway FPD1510 flat-panel display
Sound Card/Speakers	Sound Blaster PCI128; 2 Cambridge Soundworks SB36	Sound Blaster Live!; 3 Boston Acoustics Digital BA735 incl. subwoofer	Sound Blaster Live! Value; 3 Boston Acoustics Digital BA735 incl. subwoofer	Sound Blaster Live! (WDM); 5 Boston Acoustics Digital BA7500G incl. subwoofer
Connectivity	10/100Mbps Ethernet; 56Kbps modem	10/100Mbps Ethernet; HPNA networking; 56Kbps modem	10/100Mbps Ethernet; IEEE 1394; 56Kbps modem	10/100Mbps Ethernet; IEEE 1394; 56Kbps modem modem
Chassis Type	Mid-tower	Mid-tower	Mid-tower	Mid-tower
System Type	Personal Use	Personal Use	Personal Use/Home Office	Entertainment/Home Office
SYSmark 2001 Overall	161*	206*	126	154
SYSmark 2001 Office Productivity	144*	191*	116	143
SYSmark 2001 Internet Content Creation	186*	227*	137	165
Video 2001 Video Marks	2,211*	2,074*	2,257	2,267
Video 2001 Quality	762*	584*	767	754
Video 2001 Performance	854*	959*	960	1,032
Video 2001 Features	595*	530*	530	481
3Dmark 2001 3DMarks	1,969*	3,481*	1,847	5,830
Manufacturer	Gateway	Gateway	Gateway	Gateway
Final Word	Entry-level Pentium 4 system; expandable	Exceptional performance for the price; great audio	SDRAM support; loses some speed, but RAM upgrades are cheap	Awesome for games, movies, or whatever
Toll-free Phone	(800) 846-4208	(800) 846-4208	(800) 846-4208	(800) 846-4208
Phone	(605) 232-2000	(605) 232-2000	(605) 232-2000	(605) 232-2000
URL	http://www.gateway.com	http://www.gateway.com	http://www.gateway.com	http://www.gateway.com

A Pavilion Of PCs

Hewlett-Packard Offers Several Choices For Users Of All Types

Hewlett-Packard has come a long way since it sold its first product, an audio oscillator, in the 1930s. The company has established itself as one of the premier information technology businesses in the world. Hewlett-Packard's computers are among the best available, and they make something for everyone. We checked out three of the company's latest systems: a notebook computer, a SOHO (small office/home office) PC, and a powerful home user system.

How We Tested

We ran a variety of tests on each system to ascertain its performance. First, we ran the SYSmark2001 benchmark to see how well the computer could handle 2-D applications, such as Microsoft Word and Adobe Photoshop. Next, we ran the Video2000 benchmark to measure the computer's video quality. We also ran the 3DMark2001 benchmark on the two desktop PCs in this review to see how well the PC could run 3-D applications. We watched a DVD movie on each computer and played a few rounds of Quake III on both of the desktop systems to get a first-hand look at how well they performed.

HP Pavilion n5470

The Pavilion n5470 (\$2,100) notebook PC is a sharp-looking notebook that uses the Windows Me operating system and has an AMD Athlon 4 1.0GHz processor. It has 256MB of SDRAM and a 200MHz bus. The Pavilion n5470's graphics are provided by a 2X AGP Trident Cyberblade XP chip that has 8MB of SGRAM. The n5470 has a 15-inch TFT display, and a Sound Blaster Pro Compatible chip and built-in stereo speakers from Polk Audio power the system's audio.

The Pavilion n5470 has a nice combination of storage options. It has the typical 3.5-inch 1.44MB diskette drive, of course. But it also has a versatile DVD/CD-RW combo drive AND a 20GB hard drive, which should be plenty for any notebook user. The Pavilion n5470 also has a built-in 56Kbps (kilobits per second) modem and built-in 10/100 network adapter.

Design. The Pavilion n5470 measures 1.65 inches high x 13.46 inches wide x 10.92 inches deep and weighs 7.6 pounds. This is a fine-looking notebook with a sizeable keyboard that's relatively easy to use. The touchpad has a lock button so you can lock the mouse pointer in place when you're working on documents. The Pavilion n5470 has two type II PC Card slots and one type III slot available. It also has two USB ports, a parallel port, and a serial port.

Performance. The specifications for the Pavilion n5470 are good, but we were more impressed with the notebook PC's benchmark results. This is a speedy notebook. Its SYSmark-2001 Overall score of 93 shows that it can handle 2-D applications with ease. The notebook's Office Productivity score of 92 and the Internet Content Creation score of 94 are both solid numbers. The n5470 did especially well in our Video2000 test. The notebook's overall score of 1,731 is in the same neighborhood as the desktop PCs we tested.

We finished our review of the n5470 by playing a DVD movie. The notebook ran the movie pretty well, with only minor occasional slow downs in the video stream. The movie looked decent enough on the notebook's display. As you'd expect, it's better to listen to the film through a pair of headphones than through the notebook's tiny speakers.

Final word. The Pavilion n5470 is a powerful notebook PC with a fast processor and convenient features. We also like the notebook's sturdy and attractive design. It's a good choice for those who need a PC for the road, the office, or the classroom. The Pavilion n5470's price is palatable, as well.

HP Pavilion 9900 1.4GHz AMD Athlon

The next system we reviewed, Hewlett-Packard's Pavilion 9900 (\$2,333), is a good

example of a PC that can pull double duty home and office settings. This versatile system has a 1.4GHz AMD Athlon processor and a fast 400MHz system bus; the 9900 uses the WinMe operating system. The Pavilion 9900 normally has 128MB of SDRAM, but our test system had 256MB of DDR-SDRAM installed. You can increase the system's total RAM to a hefty 2GB.

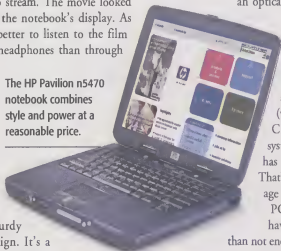
The Pavilion 9900 uses a graphics card that's based on NVIDIA's GeForce2MX graphics processor. The GeForce2MX certainly isn't as powerful as a GeForce3 graphics processor, but it's considerably cheaper than a GeForce chip and handles office and 3-D applications well enough. The graphics card has 64MB of SDRAM. Hewlett-Packard also sent us a smooth 19-inch MX90 display. This display requires a large chunk of desktop real estate, but the image quality of the monitor is really good.

Small-office and home office PCs typically don't place a premium on audio quality, nor should they. An office PC hardly needs a \$200 set of 5.1 speakers. Still, even an office PC should have a decent sound card and set of speakers for voice recognition, telephony, and listening to Wagner's "Ride Of The Valkyries" while you have to finish that report in 10 minutes, or else! The Pavilion 9900 we reviewed has a Sound Blaster Live! Value sound card and three-piece Polk Audio AMR50 speakers. This is a fairly economical setup, yet the sound quality of this system is quite good.

Of course, no PC is complete without an optical drive or two, and

it seems that no system made today is complete without a 16X DVD drive and a 12X/8X/32X (write/rewrite/read) CD-RW drive. This system has both. It also has a 75GB hard drive. That's quite a bit of storage space for a SOHO PC, but it's better to have too much room than not enough.

The Pavilion 9900 includes a 10/100 network adapter, so you'll be able to fit the system into your existing network without adding extra hardware. It also has a 56Kbps modem for users with a dial-up account. Hewlett-Packard also included a wireless keyboard and mouse with the system. Both worked well for the most



The HP Pavilion n5470 notebook combines style and power at a reasonable price.

part, although we had a little trouble with the wireless mouse when playing Quake III. More on that later.

What really distinguishes this PC from a home user system is the software. Our test PC had Microsoft Office 2000 Small Business installed, which includes most of the key programs any small-business user needs. The system also includes a copy of Trellix Web, with which you can quickly and easily create a Web site for your business. The Pavilion 9900 includes several other useful programs, such as Photo Studio 2000 LE and Easy CD Creator 4.

Design. The Pavilion 9900 is an intelligently designed system that also looks pretty cool. The case is large and roomy, so you'll easily be able to upgrade internal components. The system has five PCI slots, two of which are available. There are three 3.5-inch drive bays and three 5.25-inch drive bays; one of each is open for expansion. The Pavilion 9900 has plenty of ports for external peripherals: four USB ports, three IEEE 1394 ports, one serial port, and one parallel port.

Performance. We were pretty impressed by how well this version of the Pavilion 9900 fared in our 2-D benchmarks and in the Video2000 test. The 3-D score was just a little low, but that's not surprising given the GeForce2 MX graphics chip. The system's Overall SYSmark2001 score of 142 is excellent. The system's Office Productivity score of 144 is actually a few points higher than that of the other Pavilion 9900 system we reviewed, even though that system has a faster processor and video card. The system's Internet Content Creation score of 140 is also stellar.

The system posted a total score of 1,869 in the Video2000 and 3DMark2001 tests, which is pretty good. The Pavilion 9900's 3DMark2001 score of 2,298 isn't bad, considering how this PC is configured, but could be a little better. As high-speed 3-D graphics really aren't a priority in an office PC, this isn't a major issue.

We decided to give the Pavilion 9900's DVD drive a spin, so we played a DVD movie. The movie looked great on the hefty 19-inch monitor, and it actually sounded pretty good, too. We were surprised at how well the three-piece Polk Audio speakers handled the DVD's audio.

We also played a few rounds of Quake III on the system. We tried to use the wireless mouse in the game, but found it to be very unresponsive. The character would freeze facing one direction, making it difficult to maneuver in the game. We borrowed the optical mouse that came with the other HP Pavilion 9900 we reviewed, and the improvement was dramatic. The game ran well at most resolutions, although it started to get choppy when we increased the resolution to 1,600 x 1,200.

We finished testing this system by listening to several CD audio tracks. You won't mistake this PC's speakers for your home theater system, but the sound quality was quite good for a three-piece set. The satellite speakers are pretty small, yet they have a crisp and clear sound. The subwoofer also does an adequate job of supplying the bass.

Final word. This version of the Pavilion 9900 would be good in either a home or small-office setting and can also pull double-duty as a nice home PC to boot. The system is rather expensive for a SOHO PC, but its hardware configuration and performance helps to justify the sticker price.

HP Pavilion 9900 1.7GHz Intel P4

The last PC we'll review is another version of the Pavilion 9900. This version of the Pavilion 9900 is better suited to performance and entertainment computing rather than as a SOHO system. As you'll see, this Pavilion 9900 1.7GHz (\$2,624) is loaded with excellent hardware, and it dishes out a lot of power.

This Pavilion 9900 has a 1.7GHz Intel Pentium 4 processor, which is the latest processor HP had available for this system when it sent it to us. The 9900 uses the WinMe operating system and has 256MB of RDRAM, which is twice the RAM included in most new systems. Like the previous Pavilion 9900 we reviewed, this one has a 400MHz bus speed. Unlike the other Pavilion 9900, this one has a wicked-fast graphics card.

The 4X AGP NVIDIA GeForce3 graphics card under the Pavilion 9900's hood has 64MB of DDR-SDRAM and is the fastest 3-D graphics card money can buy. It's perfect for gamers. The monitor included with our test system, a 19-inch

HP MX90, is the same monitor used by the other Pavilion 9900 system. The more we use this monitor, the more we like it. It's huge, but the image quality is superior.

The audio quality of this system is also superior. It has a Creative Labs Sound Blaster Live! Value sound card, which has been the de facto sound card on many new systems from a variety of vendors for the past several months. The Polk Audio AMR150 5.1 speaker system is one of the best we've ever heard, which is saying a lot.

The storage options for this version of the Pavilion 9900 are nearly identical to the Athlon version we reviewed earlier. It has the same 16X DVD drive and 12X/8X/32X CD-RW used in the other 9900 system. However, this PC has a slightly larger 80GB hard drive. Also, Hewlett-Packard included an optical mouse with this system, rather than the wireless mouse and keyboard that come with the other PC. We like the optical mouse better, especially for playing games.

Performance. It should come as no surprise that this system outperformed the others in this roundup, given its faster processor and high-performance video card. The HP Pavilion 9900 made an impressive showing during our battery of benchmark tests. The Pavilion 9900's overall SYSmark2001 score of 149 is excellent. The Office Productivity score of 138 was actually a few points lower than that of the other Pavilion 9900, which is a bit surprising. However, this system's Internet Content Creation score of 160 is quite good.

The Pavilion 9900 was tops in the Video2000 test with a total score of



Attention power users: If you want a fast, smooth-running system, the HP Pavilion 9900 1.7GHz Intel Pentium 4 could be what you're looking for.

1,924, demonstrating that this PC is capable of very good image quality. The 3DMark2001 score of 5,733 was more than twice that of the other Pavilion 9900. The high 3DMark2001 doesn't surprise us, though. We expect as much from a high-end entertainment PC.

We were anxious to take the Pavilion 9900 out for a spin because we knew this would be a

fun system. We watched a DVD movie on the system, and it was fantastic. The monitor has a large viewing area, and the movie looked great on the big screen. The 5.1 speaker system handled the movie's audio beautifully. The subwoofer packs quite a punch, and the sound quality of the satellite speakers was excellent.


We played several rounds of Quake III next, which was even more fun. The Pavilion 9900's GeForce3 video card handled the game at every resolution we threw at it, even 1,600 x 1,200. The game always ran smoothly, which can be difficult when the on-screen action heats up. The speakers and sound card

faithfully positioned the 3-D audio in the game, enhancing the game's playability.

Finally, we popped an audio CD into the system. The audio CD sounded every bit as good as the DVD movie and the game. The Polk Audio speakers that came with this system sound nearly as good as those of a home stereo system.

Final word. There's an awful lot to like about this version of the HP Pavilion 9900. Gamers and power users will love its performance. You can do just about anything with this system. Its \$2,600 price tag will make some users cringe a little, but the price is comparable to similarly configured systems from other vendors.

Pick A Pavilion, Any Pavilion

We liked all of the systems we reviewed in this roundup. The notebook is pretty slick but doesn't cost an arm and a leg. The 1.4GHz Athlon Pavilion 9900 is the most versatile system in the group. It will make a great office PC, but it also doubles as a good home system. The 1.7GHz Pavilion 9900 is all about power. It is a great gaming machine, and we enjoyed using this system the most. 

by Michael Sweet

By The Numbers

Hewlett-Packard has a system for every type of user. The HP Pavilion n5470 is stylish and nicely configured, and both of the HP Pavilion 9900s are powerful and versatile systems.

	HP Pavilion n5470	HP Pavilion 9900 1.4GHz AMD Athlon	HP Pavilion 9900 1.7GHz Intel Pentium 4
Price	\$2,100	\$2,333	\$2,624
Operating System	WinMe	WinMe	WinMe
Processor	AMD Athlon 4 1.0GHz	1.4GHz AMD Athlon	1.7GHz Intel Pentium 4
Bus Speed	200MHz	400MHz	400MHz
RAM	256MB SDRAM	256MB SDRAM	256MB RDRAM
Graphics Accelerator	Cyberblade XP	GeForce2 MX	NVIDIA GeForce3
Video RAM	8MB SGRAM	64MB SDRAM	64MB DDR-SDRAM
Optical Drive	DVD, CD-RW combo drive	16X DVD; 12X/8X/32X CD-RW (write/rewrite/read)	16X DVD; 12X/8X/32X CD-RW
Hard Drive	20GB	75GB	80GB
Monitor	TFT 15-inch display	19-inch MX90	19-inch HP MX90
Sound Card/Speakers	Creative Labs Sound Blaster Pro Compatible; stereo speakers	Creative Labs Sound Blaster Live! Value; three-piece Polk Audio speakers	Creative Sound Blaster Live! Value; five-piece Polk Audio speakers
Connectivity	56Kbps modem; 10/100 network adapter	56Kbps modem; 10/100 network adapter	56Kbps modem; 10/100 network adapter
Chassis Type	N/A	Mid-tower	Mid-tower
System Type	Mobile	SOHO	Entertainment
SYSMARK2001 Overall	93	142	149
SYSMARK2001 Office Productivity	92	144	138
SYSMARK2001 Internet			
Content Creation	94	140	160
Video2000 Video Marks	1,731	1,869	1,924
Video2000 Quality	544	697	773
Video2000 Performance	684	571	670
Video2000 Features	503	600	481
3DMark2001 3Dmarks	N/A	2,298	5,733
Manufacturer	Hewlett-Packard	Hewlett-Packard	Hewlett-Packard
Final Word	Looks cool, feels good, and works well	Expensive SOHO PC, but nice features	Great multimedia PC
Toll-free Phone	(888) 999-4747	(888) 999-4747	(888) 999-4747
Phone	(650) 857-1501	(650) 857-1501	(650) 857-1501
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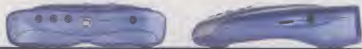
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CREATIVE

ATI RADEON 64MB DDR

ATI's RADEON 64MB DDR is a power video card and a good investment given today's technology. It's easy to find this video card for less than the estimated street price of \$186.99, so look around before you pay more.

The RADEON uses ATI's RADEON graphics chip and a 4X/2X AGP (Accelerated Graphics Port) card. It has a colossal 64MB of DDR SDRAM (double-data-rate synchronous dynamic RAM), which provides more memory than most systems know what to do with. The video card supports the OpenGL and Direct3D APIs (application program interfaces) for quality 3-D gaming. It supports version 8.0 of DirectX, a must for serious gamers and graphics developers who want to keep up with the latest technology. The video card also supports the Windows 98/Me/NT/2000 operating systems.

The RADEON 64MB DDR's maximum resolution of 2,048 x 1,536 provides



major elbowroom, with a 32-bit color depth. The maximum refresh rate at that resolution is 75Hz, which is perfect. But lower the resolution just a little to 1,024 x 768 and the range widens, with support for refresh rates ranging from 75Hz to 200Hz. The video card has a 350MHz RAMDAC for speedy digital-to-analog conversion for CRT (cathode-ray tube) monitors.

The RADEON 64MB DDR produced a SYSmark2001 Overall score of 69, an Office Productivity score of 60, and a Content Creation score of 79, which is in line with other top performers. When it came to 3-D testing, the video card had a good overall 3DMark2001 score of 2,200.

We ran Quake III to measure the frame rate the video card was able to achieve at various resolutions. At an 800 x 600 resolution, the video card maintained a frame rate of 72.4fps (frames per second), and at a 1,024 x 768 resolution it dropped a little (which is expected) to 66.3fps, which is also good.

The RADEON 64MB DDR has external connectors for a 15-pin SVGA (Super Video Graphics Array), D-Sub (for analog output), and S-Video (Super-Video). All its features combine to make the RADEON 64MB DDR good for DVD video playback and full motion video capture. This is a great card overall, and because ATI slashed the price in half since it came on the market a year ago, it's a bargain. **ES**

by Cal Clinchard

RADEON 64MB DDR

\$186.99

ATI

(905) 882-2600

<http://www.ati.com>

Appian Hurricane

The Hurricane from Appian is not only a noteworthy performer in the burgeoning category of dual-output video cards, it's also available for a competitive price.

The video card has one port each for a 15-pin SVGA (Super Video Graphics Array) D-sub connector (for an analog display), a DVI-I connector (for a digital display), and S-Video output. The video card can also expand to support as many as 16 displays with multiple boards.

The Hurricane uses a RADEON VE graphics chip and a 4X AGP (Accelerated Graphics Port) card. It has 32MB of DDR SDRAM (double-data-rate synchronous dynamic RAM). The video card supports OpenGL and Direct3D APIs (application program interfaces), and it supports the Windows 98/Me/NT/2000 operating systems.

The video card's maximum resolution is 1,600 x 1,200 pixels, which isn't as high as many video cards on the market but will do the



job for most users. The maximum refresh rate at 1,600 x 1,200 is 75Hz, but if you drop the resolution down to 1,024 x 768, the card provides a range of refresh rates from 60Hz to 85Hz. These refresh rates also aren't the highest possible, but if you keep it between 75Hz and 85Hz, the card will perform just fine.

The Hurricane had a SYSmark2001 Overall score of 68, an Office Productivity score of 59, and a Content Creation score of 79. These results place the Hurricane in league with other high-performance 2-D and 3-D video cards.

Next, we tested the video card using the 3DMark2001 benchmark. The Hurricane isn't designed to drive in the 3-D fast lane with high performance 3-D video cards, but it made a respectable showing. The video card had an overall 3DMark2001 score of 1,156. For our final test, we ran Quake III to measure the

frame rate the video card was able to achieve at various resolutions. At an 800 x 600 resolution, the Hurricane had a frame rate of 50.6fps (frames per second), and at 1,024 x 768 the frame rate was 45.6fps.

The video card is bundled with Appian's HydraVision software, which has a lot of neat features that make it easy to manage two simultaneous displays. For example, with HydraVision you can create multiple virtual desktops, reposition dialog boxes and windows however you like, and control which applications and windows will open on which display. If you're looking for a reasonably priced video card with flexibility, the Hurricane is the card for you. **ES**

by Cal Clinchard

Hurricane

\$169.99

Appian Graphics

(800) 727-7426

(425) 882-2020

<http://www.appian.com>

Western Digital External FireWire Hard Drive 60GB

If we had to choose an external hard drive, it would probably be one with an IEEE 1394 (FireWire) interface. We may have to buy a PCI (Peripheral Component Interconnect) card to add FireWire jacks to the particular PC first, but at least we would know this 51.2MBps (megabytes per second) interface wouldn't limit the hard drive's speed as would USB 1.1 (1.5MBps). USB 2.0 would have many of the same speed and connectivity benefits as 1394, but 1394 has been here for years, while at this writing, USB 2.0 has yet to show itself in mainstream products.

We've only reviewed a few 1394 drives. These have actually been EIDE (Enhanced Integrated Drive Electronics) drives attached to 1394 circuitry inside tough, plastic shells. Western Digital's FireWire Hard Drive 60GB is meant to be a semi-permanent addition to a PC rather than carried around in a backpack. The 3.5-inch hard drives, such as the one



inside this Western Digital, aren't as rugged as the 2.5-inch drives used in notebooks and portable drives.

We had a Siig PCI FireWire adapter card in our test PC, so it was a snap to hook up this Western Digital drive and begin testing. Our test PC at that time was a 450MHz Pentium III IBM PC with 128MB of RAM, Windows 98SE, and an IBM Deskstar DTLA-307015 13.5GB hard drive. (Our new test PC is similar, but it has a 600MHz Pentium III.)

This drive was carried a 67MB file and a 427MB folder in 6 seconds and 54 seconds,

respectively, and read them in 9 seconds and 1:21 (minutes:seconds). It's a faster writer than Maxtor's 1394 External Storage Drive 80GB, but a slower reader: Western Digital sells this 60GB drive for \$349, while the Maxtor now costs \$379. That extra 20GB for just \$30 more is hard to argue against, though, so we'll see if Western Digital drops its price a bit.

The FireWire Hard Drive comes with a 1394 cable, a power adapter, and installation software. Western Digital says the drive should work with Windows 98 SE/Me/2000 and Macintosh OS 8.6 or newer operating systems. Its extra software includes Ulead VideoStudio for Windows, Adobe Premiere 5.1 LE for the Mac, and Make Tracks Digital Stereo for both. The drive carries a one-year warranty. **[S]**

by Marty Sems

FireWire Hard Drive 60GB

\$349

Western Digital

(800) 275-4932

(949) 932-5000

<http://www.westerndigital.com>

Acer DVP 1640A

Acer's DVP 1640A is part of the growing crop of high-power DVD-ROM drives available at an affordable price. With a 16X drive rating and a \$99 price tag, this DVD-ROM drive is definitely worth a look.

The DVP 1640A was easy to set up because it uses plug-and-play technology. The package included PowerDVD software and the necessary drivers. The drive uses ATAPI (Advanced Technology Attachment Packet Interface), which means it connects to the same EIDE (Enhanced Integrated Drive Electronics) bus as the hard drive in most computers.

We tested the drive using our 450MHz Pentium III IBM PC with 128MB of RAM, Windows 98SE, and the DVD Tach 98 Version 2.52 benchmarking utility. We measured the drive's read times and came up with a 14.653Kbps (kilobits per second) average, which amounts to a 10.1X weighted average drive rating; one of the best ratings we've seen in a DVD-ROM. This is shy of the advertised 16X drive rating, but keep in mind that our



measurement is the average of all the drive times measured during a read session. The highest speed our benchmark recorded was 20,347Kbps, which equals a 14X drive rating.

We also used the DVD Tach 98 utility to measure the DVP 1640A's access times. When testing with a DVD, the DVP 1640A had an average random seek time of 85ms (milliseconds) and an average random-access time of 95ms. With a CD, the drive had an average random seek time of 70ms and an average random-access time of 80ms. These are OK speeds. We saw better results when looking at the DVP 1640A's full-stroke access time with a DVD, which was an exceptional 187ms.

As you'd expect, the DVP 1640A plays DVD-ROM and DVD-Video formats, but it plays all popular CD formats as well: CD-ROM, CD-ROM XA, CD-Audio, CDDA (CD Digital Audio), CD-R (CD-recordable), CD-RW (CD-rewritable), CD-I (CD-interactive), CD-Extra, Video CD, and Photo CD. The included PowerDVD software is a DVD player that lets you view DVD movies in about the same way you would with a regular DVD player. It includes a video decoder and lets you view movies in wide screen and other formats.

With above average drive speeds and other amenities, the DVP 1640A should accommodate all your DVD viewing needs. And for a low \$99, the drive is a very good deal. **[S]**

by Cal Clinchard

DVP 1640A

\$99

Acer Communications & Multimedia

(888) 723-2238

(408) 228-8000

<http://www.acer.com>

Micron Millennium Max XP2

Micron may not be the household name for PCs that Gateway and Dell are, but Micron has been one of the premier computer manufacturers for years. The Millennium Max XP2 from Micron is one of the best home PCs money can buy.

The Millennium Max XP2 we tested for this review has a 1.2GHz AMD Athlon processor and a 266MHz bus speed. The system has 128MB of SDRAM (synchronous dynamic RAM), and you can add up to 1GB of RAM. The Millennium Max XP2 also uses the Windows Me operating system.

Micron stokes the fires of this PC with a GeForce2 GTS Ultra video card that has 64MB of DDR-SDRAM (double-data-rate SDRAM), which is as good as it gets short of a GeForce3 chip. Micron included a 19-inch 910 EX monitor with the system they sent us, which you can add for \$430. The Millennium Max XP2 uses Creative Labs' popular Sound Blaster Live! Value sound card and an Altec Lansing speaker system. All in all, the Millennium Max XP2 is configured quite nicely for multimedia computing.

Micron didn't cut corners when it comes to storage options. The system we reviewed includes a 16X DVD drive and a speedy 12X/10X/32X CD-RW (CD-rewritable) drive. You'll also get a 40GB hard drive, which is spacious, but pretty common on systems more than \$1,500.

The Millennium Max XP2's case is fairly large and roomy, so you'll be able to add even more hard drives rather easily. The system has five PCI (Peripheral Component Interconnect) slots, three of which are open. There are also four 3.5-inch drive bays, two of which are available for expansion, and two 5.25-inch drive bays. The system also has two serial ports, four USB (Universal Serial Bus) ports, and one parallel port.

The software package of the Millennium Max XP2 that we reviewed was OK, though not great. This system included MS Office 2000 Small Business Edition, which is a bonus. You'll also get Roxio's EasyCD Creator 4, Intervideo WinDVD software for playing DVD movies, and Norton AntiVirus 2001.

Test results. We were very impressed with the Millennium Max XP2's overall test results. The SYSmark2000 scores were just above average, with an Overall score of 175, an Office Productivity score of 165, and an Internet Content Creation score of 188.

This system's Video2000 and 3DMark2000 test results were well above average, however. The Video2000 total score of 2,375 is great and the 3DMark2000 score of 8,348 is one of the best we've seen so far. Many systems we've seen in this price class top out at about 4,000 to 5,000 in the 3DMark2000 tests.

We could hardly wait to jump into some Quake III action when we saw the results of our 3DMark2000 test. We were not disappointed; the Millennium Max XP2 is a great gaming PC. The game ran as smooth as glass on this system and playing at higher resolutions was a treat. The game also sounded good due to the solid Altec Lansing speakers.



Next, we popped a DVD drive into the Millennium Max XP2. Its DVD quality was as good as its game-playing ability. The movie ran without the slightest hiccup and the video looked great. The movie sounded surprisingly good. The Altec Lansing speakers sounded nearly as good as some five-piece systems we've heard.

We listened to a few audio CD tracks to round out our testing. As you might expect from what we said earlier, this system's audio is really good. We have only seen a handful of systems in this price range that include speaker systems that can top the Altec Lansing speakers included with this system.

A system with this much power, this much hardware, and this many features isn't going to be cheap. And the Micron Millennium Max XP2 will require a sizeable chunk of money. There are plenty of users who will pony up for a great multimedia system, however, and the Millennium Max XP2 will satisfy those users. **GS**

by Michael Sweet

Features

Processor: 1.2GHz AMD Athlon K7
RAM: 128MB SDRAM
Hard Drive: 40GB
Optical Drive: 16X DVD; 12X/10X/32X CD-RW (write/rewrite/read)
Connectivity: 56Kbps modem
Graphics Accelerator: NVIDIA GeForce2 GTS Ultra
Monitor: 19-inch Micron 910EX
Chassis: Tower
System Use: Personal
Final Word: A very good multimedia PC

Millennia Max XP2

\$1,968

Micron

(888) 719-5031

(208) 893-3434

<http://www.micronpc.com>

IBM NetVista A40

Call it the American way, but we love to see a lean underdog take a bone away from the heftier hounds in the pack. IBM's NetVista A40 business PC (\$1,481) gets a better BAPCO SYSmark2000 benchmarking utility score with a 933MHz Pentium III than most of the 1GHz home systems we've tested in this price range. SYSmark2000 reported that the A40 had a 171 overall rating in our tests. That's pretty hot for a sub-1GHz system.

You won't find home-user niceties such as a CD-RW (CD-rewriteable) drive here. You won't even find speakers. But if you're looking for a trim workhorse that can be rolled out en masse, ready to be hooked up to your corporate network, the A40 gives you a great way to go. Its compact mini-desktop case fits easily into any desktop, especially if you stand it on one side using the included plastic base.

Foremost on its long list of nice specifications, the NetVista A40 boasts a staggering 256MB of SDRAM (synchronous dynamic RAM; 512MB maximum). That's probably far more than you'll need to run many applications at once and have multiple documents open in each. This is great news for users whose Taskbars at the bottoms of their screens look like toy trains because of all the programs they run simultaneously. A 133MHz system bus gives the 933MHz Pentium III a fast avenue to that fat RAM.

The NetVista A40's Intel Pro/100 VE 100Mbps Ethernet port and Windows 2000 Professional operating system mean that the system should fit right into your networked office. It's an attractive, ebony system with a sharp 17-inch IBM G78 monitor as its focal point.

Its matching mouse has a good scrolling lever and three buttons. We thought it was a two-button mouse at first, but as it turned out, there's a smaller button just ahead of the scrolling lever.

IBM chose a Quantum 20.4GB hard drive for the A40. That's probably big enough for the amount of data a business PC may accumulate in its lifecycle, although many home PCs at a similar price have 30GB, 40GB, or even 60GB drives. The NetVista A40's sole optical drive is a 24X TEAC CD-224E. This notebook-style CD-ROM drive grips your CD by its hub, making it easier to insert if you have the PC set up on its side. However, the TEAC drive seemed especially slow when loading software from a moderately fingerprinted CD.

Despite its surprising prowess in the BAPCO SYSmark2000 benchmarking tests, the A40 didn't fare so well in Video2000 or 3DMark2000. In the former, low ratings in Performance (279), Features (369), and Quality (538) combined for a disappointing 1,185 total score. This isn't a flaw that you would even notice for most business tasks, of course, but we're passing it along. And despite the A40's low 3DMark2000 score (900), we found its integrated Intel 82815 graphics chipset really isn't that bad for 3-D gaming. Even with a maximum of 4MB video memory, the chipset gave us smooth Quake III fraying at a resolution of 800 x 600.

The compromise for the A40's mini-desktop case is that it only has two free PCI (Peripheral Component Interconnect) slots on a daughterboard, and they are not easy to get to. The daughterboard sits in one of the PCI slots on the motherboard itself and lets you seat expansion cards parallel to the motherboard rather than perpendicularly. IBM chose this path so you could add regular PCI cards instead of scarce, low-profile ones and still have them fit inside the compact case.

Our test system had a physical AGP (Accelerated Graphics Port) slot on the motherboard, but the case didn't have a corresponding rear expansion slot for monitor cable access. This means you can't add a new AGP video card. In fact, we're not sure if the slot even works, as the diagram inside the case's lid says it's not used. The A40 does have two rear USB (Universal Serial Bus) ports, though, to make it easier to expand the system through external devices such as a Zip drive or CD-RW drive.

We don't like the fact that the A40's recovery software is on the hard drive rather than CD, but corporate users may prefer to resurrect a troubled NetVista over a network connection. The A40 comes with PC-Doctor, IBM Backup and Restore, and other software.

The IBM NetVista A40 stands alone as a great business system, assuming you have no need of bells and whistles. It's a good performer out of the box. If you compare it with new Windows Me systems in the same price range, it becomes a *great* performer. IBM gives NetVista A40 buyers a three-year parts/one-year labor warranty, with onsite service for the first year.

The company also offers volume pricing, making it even more attractive to businesses. **ES**

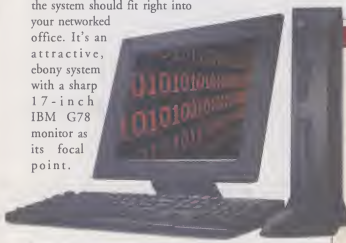
by Marty Sems

Features

Processor: 933MHz Pentium III
RAM: 256MB SDRAM
Hard Drive: 20.4GB
Optical Drive: 24X CD-ROM
Connectivity: Intel Pro/100 VE 100Mbps Ethernet
Graphics Accelerator: Intel 82815 (Integrated)
Monitor: 17-inch IBM
Chassis: Desktop
System Use: Business
Final Word: Brisk business system with ground-pounding SYSmark-2000 scores for the price.

NetVista A40

\$1,481
IBM
(888) 746-7426
(914) 765-1900
<http://www.ibm.com>



Compaq FS740

The 17-inch FS740, Compaq's first flat screen CRT (cathode-ray tube), delivers an above average multimedia punch for \$399. The package includes a pair of JBL Platinum Series speakers, 16 inches of viewable screen, and a 0.25mm dot pitch.

In a time when CRTs are facing heated competition from LCDs (liquid-crystal displays), why go with a flat screen CRT? The answer is simple: You still get more for your money with CRTs. Consumers are turning to LCDs because quality is improving and prices are coming down. But budget-conscious consumers appreciate that higher-quality CRT packages cost less than high-end LCDs.

Compaq's FS740 is a case in point. The screen is a little above average (certainly not the best on the market), but the overall package is ideal for multimedia enthusiasts with small budgets. You can attach the speakers or let them stand alone up to 5 feet away from each other with the included cord.



The monitor features an integrated microphone.

The monitor uses the Plug-and-Play standard for easy installation and includes concise documentation. Our only complaint with the intuitive OSD (on-screen display) is that, depending on what settings you are adjusting, you have to press the arrow button a number of times to exit the OSD menu. To the monitor's credit, it required little adjustment. The default setting for brightness, 50%, was a little dark; we improved all images by changing the brightness to 70%.

We evaluated the FS740 on an IBM running Microsoft's Windows 98 operating system and employing a 450MHz Pentium III with 128MB RAM. We used the Asus v7700 GeForce2 GTS video card. The maximum resolution, 1,280 x 1,024 pixels with a 60Hz refresh rate, maintained clean, sharp images almost as well as the recommended 1,024-x

768-pixel resolution at 75Hz. We were impressed with the clarity of the text in a Microsoft Word document and an Excel spreadsheet. Only the tiniest font sizes were a little fuzzy; in our diagnostic tests, we noticed slight blooming and halo effects.

The graphics are a little shy of gorgeous. The monitor handles most graphics well, and gamers will appreciate that images in the darkest shadows are easily recognizable. However, the brighter end of the spectrum is rich with clarity but rather dull. Bright primary colors glow nicely, but more complex colors look flat.

If you have plenty of cash and are mainly interested in a flat screen, check out a high performance LCD with multimedia features. Otherwise, the Compaq FS740 is a great deal. **[E]**

by Cal Clinchard

FS740

\$399

Compaq

(800) 888-0220

(281) 370-0670

<http://www6.compaq.com>

Olympus CAMEDIA P-200

Portable photo printing is an extravagance few can afford, but digital photography devotees will want to check out the Olympus CAMEDIA P-200. This machine combines high-quality photo output with portability, for a price.

The P-200 prints at a resolution of 320dpi (dots per inch), using four passes; once each for yellow, cyan, magenta, and a coating to protect against ultraviolet light. The P-200 uses heat to convert rolls of dye into a gas that is affixed to the photo paper.

The printer is portable but not tiny. It's 2.1 inches high x 4.8 inches wide x 6 inches deep and weighs 3 pounds with the battery. You can use the P-200 with your PC through parallel or USB (Universal Serial Bus) cables, which aren't included.

For our test, we slipped a CompactFlash card into the printer. (It also accepts SmartMedia memory chips.) You have to know in advance which photo you want to print because there is no preview function to help

you sort through your photos. After we figured out which exposure to print, we pressed Print and had a new photo about 90 seconds later.

Colors in the photos were vibrant, and details were crisp and sharp. However, we did note banding about a quarter inch from the end of every photo. It wasn't overly distracting, but it was disappointing considering the P-200's cost.

The final print was 3 inches high x 4 inches wide. Most of our prints featured one full-sized image, but there are some options you can cycle through to change the output, such as inserting up to 16 images on one sheet or inserting a time-date stamp.

At about the sixth photo we printed, the battery power indicator ominously began draining; at number 14, the P-200 refused to print. This is a short battery charge indeed, considering we were just beginning to have



fun. The recharge time for the nickel-hydrogen battery is 2.5 hours; unfortunately, the battery doesn't charge with the AC adapter if you're using the printer.

Olympus' list price is \$549, but a quick Web search can uncover a P-200 for nearly \$150 less. A replacement ink cartridge and 25 sheets of paper come as a pair for \$20.

The short battery life is this photo printer's biggest hindrance. But if you really need portable photo printing, the P-200 will slip nicely into a serious digital photographer's backpack. **[E]**

by Nathan Chandler

CAMEDIA P-200

\$549

Olympus

(800) 347-4027

(631) 844-5000

<http://www.olympusamerica.com>

Toshiba PDR-M61

You have to dig under the frame of the Toshiba PDR-M61 to learn how it differs from Toshiba's PDR-M65. On the surface, there appears to be absolutely nothing separating these two cameras. When you dig, you'll find the PDR-M61 offers 2.3-megapixel image quality, which is about a million pixels less than the PDR-M65.

At an estimated street price of \$350, the PDR-M61's image quality and ease of use make it a fairly strong option for those who don't demand a great deal of manual control. Toshiba advertises the camera as having a Manual mode, and there is a Manual setting on the mode dial, but it leads to just a few white balance and exposure settings. For the most part, this camera is a point-and-shoot model with a respectable 2.3 megapixel image quality.

Throw in 3X optical and 2X digital zoom for the 8.2mm-to-23.3mm lens, and you've got a camera that can't match the quality of comparable Eastman Kodak and Olympus models we've seen, but one that sits above most others

in the same price range. The good news is that despite what it lacks, it's ready to go right out of the box.

Powering on four included AA alkaline batteries (rechargeable batteries are optional), the PDR-M61 can take 16 shots continuously at 0.25-second intervals. Shots are taken at resolutions of 896 x 600 pixels or 1,792 x 1,200 pixels. Those shots rate as being decent but not great. Our indoor shots were slightly dark, even with the flash (auto, red-eye reduction, fill, off, and slow synchro settings) on. Our other shots featured colors that were accurate but lacking vibrancy, although the detail and focus were good.

The PDR-M61 stores images on a bundled 8MB SmartMedia card, which can handle seven to 112 shots, depending on the Fine, Normal, and Basic setting you choose. You can view shots immediately on the 1.8 LCD (liquid-crystal display), which is also



used to view the camera's menus, which are easy to follow but text driven. A four-way jog button and Menu, Display, Macro, and Delete buttons help navigate the menus. Toshiba also offers Flash, Quality, and Self Timer buttons on the camera's top.

Newer users should have little trouble using the PDR-M61. We were snapping images minutes after unpacking the camera. Although it lacks functions and features skilled users will certainly want, the PDR-M61 isn't a bad choice for those seeking little more than a camera they can aim and shoot at a reasonable price. [B]

by Blaine Flamig

PDR-M61

\$350

Toshiba

(800) 550-8674

(949) 583-3000

<http://www.toshiba.com>

Samsung SyncMaster 170T

Evaluating the Samsung SyncMaster 170T LCD (liquid-crystal display) provided us with a paradox: The display fared poorly in our treadmill of diagnostic tests, but performed pretty well when we did some practical analysis and looked at the kinds of files and images most users will regularly encounter.

What does this mean to you? For us, the deciding factor is the price tag. At \$1,039 MSRP, we would consider buying a 15-inch LCD to get a higher-quality display for a lot less money. But if you must have a 17-inch or larger LCD, you shouldn't rule out the 170T.

If you must have a larger LCD, the first thing to consider with the 170T is its resolution. We tested the LCD at its recommended 1,280 x 1,024 pixels with a 75Hz refresh rate. At this resolution, the display handled all practical applications well. However, this resolution



makes for very tiny print, and unless you have the eyesight of a bionic person, you're left to either change the window settings so Taskbar and menu text appears larger or squint.

The bad news for this LCD is that it did not perform well during diagnostics tests for timing lock, video bandwidth and brightness, and resolution. We saw many lines across the screen during these tests in addition to heavy vertical ripples during our moiré test. And while most of the screen provided clear, sharp images, focus tests revealed parts of the screen as noticeably blurry. We used the Auto Focus button, which relocated but did not diminish the blurry areas.

In looking at files using Microsoft Word and Excel, the 170T presented nice, crisp text when using typical fonts and sizes, such as Times New Roman size 12; however,

smaller font sizes looked a little fuzzy. Most users of text applications would probably not complain about the 170T, but from this perspective we'd only choose this model if we had a lack of desk space and a loose wallet.

The good news for the 170T is that it exceeded our expectations when it came down to using real-world applications to display graphics. We looked at digital photographs using Adobe Photoshop and found them to be incredibly realistic. If you spend most of your time using applications such as Photoshop, you might love this display. But even at \$1,039, which is not a bad price for a 17-inch LCD, anyone on a tight budget should keep looking. [B]

by Cal Clinchard

SyncMaster 170T

\$1,039

Samsung Electronics

(800) 726-7864

(201) 229-4000

<http://www.samsungmonitor.com>

WinBook X1 1GHz

The only real constant in the computer industry is change, and WinBook has clearly embraced this idea in designing its newest notebook PCs. WinBooks have nearly always been solid performers and have consistently offered exceptional value. But up until last year, the company's repetitive use of the same stodgy shapes, colors, and design elements in constructing its products made WinBook seem like a poor stepchild to bigger, name-brand companies. The X1's sleek design and lightweight construction (it weighs 5.1 pounds) reveals a company that is paying more attention to form, and not just to function anymore.

Specifications. Unlike WinBook's first 1GHz notebook, which contained an Intel desktop CPU crammed into very close quarters, the X1 takes advantage of Intel's newest mobile Pentium III chips with pleasing results. We'll talk more about performance later, but the 1GHz X1 holds its own against the best notebooks on the market. Our review unit came with a healthy 256MB of RAM, although shortly after ours arrived WinBook bumped the standard memory with its 1GHz notebooks to 320MB (at the same price, no less). Its main permanent storage comes in the form of a 20GB hard drive, but WinBook quickly improved on that as well, bumping it up to a 30GB model without increasing the X1's price. The flattening PC market and plummeting component costs no doubt have much to do with these upgrades, but we'll gladly take them.

The X1 also comes with a combination DVD-ROM/CD-RW (CD-rewritable) drive built into its right edge, a 13.3-inch TFT (thin film transistor) display, and a combination 56Kbps (kilobits per second) modem and 10/100Mbps (megabits per second) network adapter. A Silicon Integrated Systems video chipset drives the display with help from up to 64MB of shared system memory, and a 14.8-volt Li-Ion (lithium-ion) battery keeps everything lit up away from power outlets. WinBook ships the 1-inch high (when closed) x 11.4-inch wide x 9.6-inch deep unit with Windows 2000 Professional preinstalled.

Design. WinBook didn't just make the X1 a thinner, lighter version of its traditional notebooks; it incorporates some attractive new design features as well. Its vaguely pewter-colored outer shell is a nice break from traditional dark grays and blacks, but it still looks professional. Its display is very nice with the exception of a dim spot here and there, and the case's lid should do a good job of protecting it against bumps and bruises. We like WinBook's use of magnesium alloy throughout the case, rather than just in the lid panel, and the WinBook logo embossed across the outside of the lid is a nice touch.

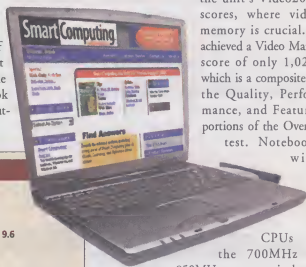
Features

Processor: 1GHz Pentium III
RAM: 256/320MB
Display: 13.3-inch TFT
Dimensions (inches): 1 x 11.4 x 9.6
Weight (pounds): 5.1
Hard Drive: 20GB
Optical Drive: DVD-ROM/CD-RW
Connectivity: 56Kbps modem; Ethernet
Final Word: Not as fast as we hoped it would be, but all things considered, the X1 is very competitive with other notebooks in its price range.

The speakers above the keyboard pushed plenty of sound at us when turned up, but we found that they distort a bit as we exceed about three-quarters of their total volume. The keyboard that takes up most of the X1's base area is a bit of a mixed bag. We liked its overall size, but we found that the cursor control keys (HOME, END, and some others) tended to get in the way as we reached for standard keys along the right edge, such as BACKSPACE and ENTER. It also felt a little shallow, but this is very likely a result of the X1's extremely thin chassis (internal components have to go somewhere, after all). The touchpad beneath is a pretty good one, and we especially liked the scrolling button beneath its left and right buttons.

Performance. The X1 didn't give us the astronomical benchmark scores we were hoping for, but it did very well nonetheless and probably would have done considerably better with a better video controller. As we mentioned earlier, the SiS 630 uses shared system memory, so although it has access to as much as 64MB of memory, drawing upon the notebook's system memory takes its toll. It produced SYSmark2000 scores that fall right in line with 850MHz Pentium III notebooks we've tested, including a 177 in Internet Content Creation, a 146 in Office Productivity, and a 159 Overall score.

The biggest performance hit showed up in the unit's Video2000 scores, where video memory is crucial. It achieved a Video Marks score of only 1,029, which is a composite of the Quality, Performance, and Features portions of the Overall test. Notebooks with



CPUs in the 700MHz to 850MHz range routinely get better Video2000 scores than this with half as much system memory. WinBook lists the X1's battery life at 2.5 hours using power management features.

Final word. WinBook's 1GHz X1 won't set the world on fire, but it produced competent overall performance scores, is highly portable, and looks great. Its only glaring weakness is its lackluster video performance, but for many users this won't be a big issue. Priced at \$3,098, the 1GHz X1 just barely sneaks into its price category, which makes it even more attractive. **[S]**

by Chris Trumble

X1 1GHz

\$3,098
WinBook
(800) 254-7806
(614) 850-3000
<http://www.winbook.com>

Sony SDM-N50PS

Sony's SDM-N50PS 15-inch LCD (liquid-crystal display) offers one of the most sleek, stylish designs we've seen. It has a half-inch thick panel and built-in stereo speakers with bass boost, and it weighs less than 6 pounds. We were sad to encounter lackluster imaging capabilities from this futuristic, space-saving package.

Installation was easy; the display uses Plug-and-Play technology. Sony calls the display's design unique; we would add "wobbly." It's a seemingly solid display until you touch it; we found pushing buttons easier when steadying the panel with our fingers while pushing buttons with our thumb.

We evaluated the display on an IBM running the Windows 98 operating system and employing a 450MHz Pentium III with 128MB of RAM and a powerful Asus v7700 GeForce2 GTS video card. We used the recommended resolution of 1,024 x 768 at 75Hz, which is also the maximum resolution.

The SDM-N50PS responded magnificently to most of our diagnostic tests (video



bandwidth, brightness, and modulation were perfect; there were no blooming or halo effects; and text looked good in any font and size) but responded poorly to others. Tests for screen uniformity and focus revealed a little darkness and blurriness in the top corners. And while the test for color combinations was all right, the remaining tests for color presentation yielded mediocre results. For example, the color scales test showed a reasonable consistency from lighter to darker hues, but every color was muted and lacked the richness we would have liked.

We used the SDM-N50PS to look at real-world applications and quickly noticed the colors were weak. The display handled text well in a Microsoft Word document and an Excel spreadsheet (all fonts and sizes were crystal clear), but the window and cell colors were dull. Detailed images displayed using Adobe Photoshop also revealed weak imaging and a lack of clarity in the shadows.

One cool thing about the SDM-N50PS: It allows dual input, which lets you toggle between input sources. Other bells and whistles include a motion sensor that's supposed to power down the display 20 seconds after the user steps away and power up as soon as the user returns. The unit also features a light sensor that adjusts the brightness depending on the level of ambient light. When we turned this feature on under the kind of fluorescent lighting most offices have, the colors became flatter.

You might want to consider buying this LCD if you care a lot about space and dual-input but don't care about color presentation. If you're spending the full \$999 MSRP, though, we think you should do yourself a favor and look elsewhere. [B]

by Cal Clinchard

SDM-N50PS

\$999

Sony Electronics

(888) 476-6972

(201) 930-1000

<http://www.sonymstyle.com>

Sony Mavica MVC-CD1000

One of Sony's strongest points in regard to digital cameras is its ability to appeal and adapt to users' tastes by offering features that are alluring, practical, and easy to use. The recent Mavica MVC-CD1000 travels this path by storing images on 3-inch, 156MB CD-R (CD-recordable) discs.

Sony carved out a considerable segment of the digital camera market by incorporating into its previous models the convenient method of using floppy diskettes to store and transfer images. Floppies have definite advantages, but they also compromise image quality and can only store a few quality shots at a time. With the MVC-CD1000, Sony has tapped into a storage method whose potential is far greater than its few problems.

The CD1000 can store 160 images taken at a top resolution of 1,600 x 1,200 pixels on the CD-R discs or a whopping 1,080 shots at 640 x 480 pixels. Discs only cost about \$3 each, and transferring shots is incredibly easy, as a disc can be read by nearly any standard

CD-ROM drive. But once a shot is on the disc, it's there for good. And it remains to be seen how the camera's drive will stand up over time taking the continual beating most users give a camera. That pounding could lead to problems with images recording accurately to a disc, and with a price tag of about \$875 ESP (estimated street price), this isn't a risk to take lightly.

If you take the leap, you'll get a lot of camera. Included is a powerful 10X optical and 20X digital zoom (52mm) lens with a manual focus ring; ability to shoot movies at 320 x 240 pixels; a Super SteadyShot feature to reduce camera shake; an excellent rechargeable InfoLithium battery; external flash connector (for a HVL-F1000 flash unit only); uncompressed TIFF (Tagged Image File Format) mode; various white balance and exposure settings; built-in microphone;



2.5-inch LCD (liquid-crystal display); and much more.

As you'd expect, the camera is huge and requires some muscle to haul around. More positive are the easy-to-manuever menus and impressive images. Our shots featured excellent crispness in detail and focus, and colors soared off our test monitor with lush, vibrant hues and shades that instantly grabbed our attention.

The CD-1000 is costly, and only time will tell if the CD-R storage will stand up. If it does, Sony should keep a tight grip on its position as an industry leader for some time. [B]

by Blaine Flamig

Mavica MVC-CD1000

\$875

Sony Electronics

(800) 352-7669

(408) 432-1600

<http://www.sony.com>

Compaq FS940

The FS940 is Compaq's latest addition to the burgeoning category of 19-inch CRT monitors. The FS940 doesn't burst with new or extraordinary capabilities, but it doesn't cut any corners either. If you're in the market for a decent large-screen monitor, this one might do the trick.

We evaluated the FS940 on an IBM running Microsoft's Windows 98 operating system and using a 450MHz Pentium III with 128MB RAM and an ASUS v7700 GeForce2 GTS video card. We used the recommended settings, 1,024 x 768 resolution with a 75Hz refresh rate and 32-bit color depth, and experienced average imaging. We also tried the maximum resolution of 1,600 x 1,200 with a 100Hz refresh rate, but unless you don't mind squinting, this is an impractical setting.

Our diagnostic tests revealed minor halo and blooming effects, and our video bandwidth test provided similar results. These effects were reinforced when we opened a Microsoft Word document and an Excel spreadsheet and noticed text using smaller



fonts looked a little fuzzy. Larger fonts were clearer, but when we started combining colors we found that lighter colors (such as yellow, bright blue, and bright green) against a white background were too fuzzy to use. These effects don't indicate a bad monitor, but they hold the monitor back from escaping the average category.

We looked at detailed images using Adobe Photoshop and experienced decent results. Color differentiation was good, but the bright and dark ends of the scale were not very exciting. The brighter portions of images were a little lackluster, and the darkest areas lost some sharpness. We veered away from the factory settings in an attempt to improve the image, and while the OSD was reasonably responsive, we had to admit the factory settings provided the optimal results for this monitor.

The OSD provides a lot of control, with features that let you make changes to pincushion, pin balance, trapezoid, parallelogram, and

color temperature settings in addition to the usual contrast, brightness, screen size, and screen position settings. The OSD is easy to use, and the accompanying documentation gets to the point quickly and doesn't waste your time.

So if the FS940 is average for a 19-inch monitor, how do you decide if it's right for you? Your best bet is to look at the price tag, which is \$499 MSRP for this model. Graphics professionals might want to look elsewhere (and pay more), but gamers can expect good, reliable imaging. The FS940 is a reasonably priced workhorse of a monitor, so it might best be suited for general office or SOHO (small office/home office) use. **[B]**

by Cal Clinchard

FS940

\$499

Compaq

(800) 888-0220

(281) 370-0670

<http://www.compaq.com>

Yamaha CRW2100FXZ

Yamaha's CRW2100FXZ is a versatile, speedy little CD-RW (CD-rewritable) drive that's compatible with the Windows 98 /Me/2000/NT 4 and MacOS 8.5 operating systems. And for \$379 (MSRP), it's reasonably priced.

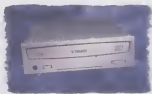
The CRW2100FXZ is an external IEEE 1394 (FireWire) drive that reads at 40X, writes at 16X, and rewrites at 10X. It reads the typical CD formats: Audio CD, CD-DA, CD-ROM, CD-R, CD-RW, Photo CD, CD Extra, CD-i (CD-interactive), and Video CD. The drive has an 8MB buffer, which is more than most CD-RW drives available today.

We connected the CRW2100FXZ to our IBM PC, which has a 450MHz Pentium III processor and 128MB of RAM running Win98. We couldn't actually test this drive, as our version of CD Tach wasn't designed to use FireWire. We did time some large file reads and writes; however, the times we recorded don't accurately reflect this drive's capabilities. For this test, we measured the amount of time

it took the drive to write and rewrite 427MB of data to CD-R and CD-RW media. The drive wrote the data to CD-R media in 4:28 (minutes:seconds), an impressive time. It transferred data to CD-RW media in 9:23.

The CRW2100FXZ uses CAV (constant angular velocity) technology, which maximizes performance by keeping the drive motor at a constant speed. Since the motor speed doesn't change, the disc's inside tracks are read more slowly than its outer tracks. As a result, the drive speed will be faster toward the end of a recording session. When using a slow-speed drive, CAV can be an annoyance. But higher-speed drives, such as the CRW2100FXZ, achieve win-win results: They burn CDs quickly, and they're easier on the motor.

You can use the drive to write an entire disc at one time or write one track at a time. Track-at-once technology has made writing to CDs a much handier process; it lets the drive write "run-out" blocks to mark where the track



ended so it knows to pick up where you left off.

The CRW2100FXZ is bundled with a cool set of software, including Roxio's Easy CD Creator 4.02d (Platinum 5 is the latest version), Neato CD Labeller, MusicMatch Jukebox 6.0, and Adobe's Acrobat 4, PageMill 3.0, PhotoDeluxe Business Edition, and Activeshare.

Since most of today's drives feature speeds that surpass the average user's needs, you might want to explore slower, less expensive models. But if you want the latest CD-burning machine and the portability of an external drive, the CRW2100FXZ is an above average drive at a decent price. **[B]**

by Cal Clinchard

CRW2100FXZ

\$379

Yamaha

(714) 522-9000

<http://www.yamaha.com>

Casio PV-S450

Casio's Pocket Viewer series is a low-end PDA (personal digital assistant) that helps balance the company's high-end Pocket PC products. Whereas Pocket PCs typically cost around \$500, you can usually get Pocket Viewers for about \$100; they provide all the basic PDA functionality you'd expect.

Pocket Viewers won't let you read electronic books or play back digital music like Pocket PCs, but they will manage your appointments, memos, contacts, and to-do lists. The PV-S450 includes several other applications targeted at business professionals. Pocket Sheet is a spreadsheet application that lets you create and edit spreadsheets, and the Expense application lets you keep track of your business expenditures.

Like other PDAs, the PV-S450 can sync with a PC using the included PC sync software. The software provides desktop PIM (personal information manager) functionality that lets you enter appointments, contacts, memos, and expenses on your desktop PC.

PC sync works as both a desktop PIM and a synchronization utility. Pocket Sheet Sync lets

you transfer Excel spreadsheets from your desktop to your PDA and vice versa. The software requires Microsoft Excel to transfer spreadsheets, but you can create spreadsheets on the PV-S450 and leave them there without a version of Excel on your desktop.

The downside of the PV-S450 is that it runs a proprietary operating system. Unlike Palm OS devices or Pocket PCs, you can't add software to expand the functionality of the PocketViewer. Some users, especially those looking for a low-priced PDA, may not mind the lack of third-party software, but more experienced Palm users will surely miss it.

The PV-S450's grayscale display is not as easy to read as the displays on Palm and Pocket PC devices. The Casio's display is a slightly darker green than Palm's display and results in less contrast between the background and the characters, which are a little blockier and not quite as sharp or smooth.



The display's backlight does let you use the PV-S450 in dim lighting conditions.

The PV-S450 measures 5 inches high x 3.23 inches wide x 0.47 inches wide and weighs 4.59 ounces, making it very portable and easy to carry. Battery life is approximately 80 hours on two AAA batteries, but this will vary depending on usage.

The PV S-450 comes with 4MB of RAM, which, considering the lack of third-party applications, is plenty of room for your personal information. At \$129, the PV-S450 is affordable, but it's battling the Palm m100, also for \$129. If you must have a spreadsheet application and are on a tight budget, you may want to look closer at this Pocket Viewer. **GS**

by Chad Denton

PV-S450

\$129

Casio

(888) 204-7765

(973) 442-5707

<http://www.casio.com>

Hagiwara Sys-Com Step Keeper

Walking is an excellent way to stay in shape, and it's something you can incorporate easily into your daily routine. If you want an easy way to track your daily walking activity, check out the Step Keeper.

The Step Keeper is a Springboard module you slide into your Visor and wear on your waistband or belt throughout the day. Your natural walking motion causes a pendulum inside the module to move. By monitoring this pendulum, the module can record your every step.

A rechargeable battery provides enough power to let the module run for up to four days. The battery quickly recharges when you insert the module into the Visor. After charging the battery initially for four minutes, it should only take a minute each day to recharge.

The first time you place the module into the Visor, Step Keeper Assistant greets you and asks for some personal information, including your height, weight, stride, and

personal goal. Once you enter this information and the battery is fully charged, you are ready to clip Step Keeper to your waistband and start walking.

Check your progress throughout the day by inserting the module into the Visor. An electronic assistant greets you and gives you words of encouragement. Some of the encouragements contain typos, but a software update to fix the problem is scheduled for June.

At the end of the day, plug the module into your Visor and save your steps. You can then review a bar graph comparing your goal to your activity for the past three days. A similar line graph is available showing data over the last week. You can also see an estimate for the

amount of calories you've burned by walking. A three-day and one-week graph of caloric data is also available.

The Visor only stores your last seven records, so if you want to archive your results, export records to a Memo as either a list or a CSV (Comma Separated Value) file. Step Keeper will transfer the Memo to your desktop PC the next time you perform a sync. You can also import a CSV file into a spreadsheet application.

We think \$49.95 is a little steep for what the Step Keeper does, but the product is a nice way to evaluate and track your daily walking activity. **GS**

by Chad Denton

Step Keeper

\$49.95

Hagiwara Sys-Com

(858) 546-9989

<http://www.hscs.com>



ABS Performance System 1

The ABS Performance System 1 series of computers lives up to its name. These systems are packed with excellent hardware and have a lot of power. We recently tested a 1.3GHz Performance System 1, and we were pretty impressed with it.

Specifications. The 1.3GHz AMD Athlon-based system we tested runs on Windows Me and has a 266MHz bus speed. The bus speed is not bad, but many new systems are starting to use 400MHz bus speeds. Our test system had 256MB of DDR-SDRAM (double-data-rate synchronous dynamic RAM), twice as much as the 128MB of RAM included in most new systems in this price range. The Performance System 1 has two slots for RAM, and you can increase its total RAM to 1GB.

One thing we really like about this system was its GeForce3 graphics card, which really showed some muscle in our 3-D tests. The video card has 64MB of DDR-SDRAM, so it can handle a lot of data. Our test system also came with a 19-inch ViewSonic E 95 monitor. The Performance System 1 is configured for high-end PC audio tasks, with a top-of-the-line Creative Labs Sound Blaster Live! Platinum 5.1 sound card kit and a very nice set of Cambridge SoundWorks Desktop Theater 5.1 DTT 3500 speakers.

This particular PC model has a good combination of optical drives: a 16X DVD drive and a very fast 16X/10X/40X (write/rewrite/read) CD-RW (CD-rewriteable) drive. The system also has a generous 60GB hard drive, which should give you plenty of room. This system has both a 56Kbps (kilobits per second) and a 10/100 network adapter, so it's ready for either a traditional dial-up or high-speed broadband Internet connection right out of the box.

Design. The Performance System 1's mid-tower case is very roomy, so you won't be cramped if you decide to tinker around inside



Features

Processor: 1.3GHz AMD Athlon
RAM: 256MB DDR-SDRAM
Hard Drive: 60GB
Optical Drive: 16X DVD; 16X/10X/40X CD-RW
Connectivity: 56Kbps modem; 10/100Base-T network adapter
Graphics Accelerator: NVIDIA GeForce3
Monitor: ViewSonic E90-2
Chassis: Mid-tower
System Use: Personal
Final Word: Excellent performance; great PC audio and video

the case. The system has a total of five PCI (Peripheral Component Interconnect) slots, two of which are open. There are also two available 3.5-inch drive bays out of four total. However, all three of the 5.25-inch drive bays are occupied. The Performance System 1 also has two serial ports, two USB (Universal Serial Bus) ports, and one parallel port.

Performance. We unleashed our benchmarks on the ABS Performance System 1 and test results were especially good for a 1.3GHz system. The PC's overall SYSmark2001 score was a solid 141. Its Office Productivity score was 146, and its Internet Content Creation score was 136.

The system also had a good showing in our Video2000 test with a total score of 2,458. We followed the Video2000 test with the 3Dmark2001 test and the Performance System 1's total score was 5,684, which is very good for a 1.3GHz system.

We rounded out our testing by watching a DVD movie, listening to several audio tracks, and playing a few rounds of Quake III on the system, which excelled in each task.

This PC is a good choice when it comes to DVDs. The sound is awesome thanks to the high-quality Creative Labs sound card and Cambridge SoundWorks Dolby Digital six-speaker system. This combination of audio equipment is ideal for playing DVD movies on a PC. The video quality of the movie was impressive, as well. There were no pauses, hiccups, or stuttering in the video stream.

The Performance

System 1 also proved to be a good gaming system. The game ran smoothly even at resolutions up to and above 1,280 x 1,024. The on-screen images looked very nice. And as with the DVD movie, the audio quality was impressive. The bass added a nice thump to the game action, and the five satellite speakers did a good job of creating a 3-D audio effect, which enhances the playability of any game.

We finished our testing of the ABS Performance System 1 by listening to a few audio tracks. We figured they'd sound great considering our experience with the DVD movie and Quake III, and so it was. The bass and treble balanced nicely, and there was very little if any background hiss even at higher volumes.

Final word. If you're looking for a top-flight multimedia system, the ABS Performance System 1 should be on your short list. Its price tag is perhaps a little high for a 1.3GHz system, but this PC has a lot of kick. **[B]**

by Michael Sweet

Performance System 1

\$1,939 (monitor included)

ABS

(800) 876-8088

(562) 695-8823

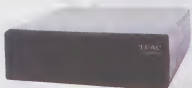
<http://www.buyabs.com>

TEAC CD-WE24E

For portability and speedy CD burning combined, you can't beat an external USB (Universal Serial Bus) CD-RW drive. The CD-WE24E 4X/4X/6X from TEAC is that kind of drive. The drive is slower and more expensive than many internal drives, but comparing internal drives and USB CD-RW drives is like comparing apples and oranges. At \$179 (MSRP), the CD-WE24E is one of the cheapest USB CD-rewritable drives on the market.

The CD-WE24E reads at 6X and rewrites at 4X. A number of zippier external drives are out there, but you'll likely pay more for them. The drive reads CDDA, CD-ROM, CD-ROM XA, CD-R, CD-RW, CD-I, CD-Extra, Video CD, and Photo CD formats and is compatible with the Windows 98/2000/Mac and MacOS 8.5 operating systems. However, like other USB CD writers and rewriters, the CD-WE24E shines with its writing and rewriting abilities. For reading, you'll want to stick with your system's CD-ROM drive.

We tested the drive on an IBM using a 450MHz Pentium III with 128MB of RAM



running Windows 98SE. We used CD Tach 98 Version 2.00 to measure the drive's data-transfer rate, random-access time, and full-stroke access time. The CD-WE24E's data-transfer rate clocked in at 839KBps (kilobytes per second), giving it a drive rating of 5.6X. This is an average timing; the maximum was 911KBps, giving it a drive rating just above the advertised 6X. Next, we checked out the drive's access times. The random-access time was 98ms (milliseconds), which is decent for an external USB drive. The full-stroke access time was 244ms, which is quicker than the average drive of this type.

The drive's write and rewrite speeds aren't spectacular, but they're quick enough to make this a decent external drive, especially

considering the bargain price. The CD-WE24E needed 15:48 (minutes:seconds) to record 427MB of data to CD-RW and 13:32 to record 427MB of data to CD-R.

The CD-WE24E offers convenience, both in terms of its portability and its ability to write to disc in two methods: It can record an entire disc at once, or it can record one track at a time. When you combine these abilities with its 2MB buffer, this drive takes the inconvenience and struggle out of CD burning.

The CD-WE24E comes with some extra software, including EasyCD Creator 5 and Toast for Mac, but little else in terms of frills. When all is said and done, this is a pretty barebones drive that will handle your portable CD burning needs at a reasonable price. **BB**

by Cal Clinchard

CD-WE24E

\$179

TEAC America

(323) 726-0303

<http://www.teac.com>

Hercules 3D Prophet 4500 64MB

A new graphics card is just the thing to give your PC a power boost, but a GeForce3-based video card will set you back at least \$400. Thankfully, there's no need to fork over that much dough just to give your PC a kick in the pants. We found a video card that'll improve your system's performance and still leave some money in your pocket: the Hercules 3D Prophet 4500 64MB.

The 3D Prophet 4500 isn't as powerful as a GeForce3-based video card, but it costs about \$300 less. The main reason this video card is so affordable is that it uses a Kyro II graphics chip rather than an NVIDIA graphics chip. The 3D Prophet 4500 is an AGP (Accelerated Graphics Port) card, of course, and has 64MB of SDRAM (synchronous dynamic RAM). The 3D Prophet 4500 supports the OpenGL and Direct3D APIs (application program interfaces).

This video card has a couple of minor limitations. First, its maximum resolution is 1,920 x 1,440. Most video cards we've tested for the

past several months support resolutions up to 2,048 x 1,536. But this won't affect you unless you plan to use a really big monitor. Also, the card's maximum refresh rate is only 120Hz; most video cards have a maximum refresh rate that's twice as high. This video card also works with Windows 9x/Me/NT/2000.

The 3D Prophet 4500 is one of the first video cards we've tested using our two new benchmarks: SYSmark2001 and 3DMark2001. We think its test results were pretty good with an Overall SYSmark2001 score of 63, an Office Productivity score of 67, and a Content Creation score of 59. The video card's overall 3DMark2001 score of 1,221 is pretty good for a sub-\$200 video card.

We popped in Quake III for our last test to measure the frame rate the card could achieve at different resolutions. As with the benchmark tests, the results were good for a video card in this price category. The frame rate at a resolution of 800 x 600 was 76.2fps (frames per second), and at 1,024 x 768, the frame rate was a



stellar 73.4fps. The 3D Prophet 4500 managed to maintain a frame rate of 42fps at a resolution of 1,600 x 1,200, which is good enough to prevent dropped frames.

The Hercules 3D Prophet 4500 64MB won't be the biggest, baddest video card in the computer store, but it takes care of business. If you don't need the latest and greatest technology, you'll be satisfied with this video card. **BB**

by Michael Sweet

3D Prophet 4500 64MB

\$149.99

Hercules/Guilemot

(877) 484-5536

(514) 279-9960

<http://us.hercules.com>

Toshiba PDR-M65

The PDR-M65 from Toshiba doesn't have all the advanced features and manual controls that many models with a resolution topping three megapixels have, but for users who merely want a camera they can point and shoot without messing with numerous controls, the PDR-M65's limited options aren't a bad thing.

Toshiba does include a Manual option on the camera's mode dial, but don't be fooled by it. It lets you rummage through a few white balance and exposure variations but little else. This camera is aimed primarily at users with limited picture-taking skills. Fortunately, it offers enough image quality to make your shots worthy of medium-sized prints.

The camera shoots at resolutions of 2,048 x 1,536 pixels or 1,024 x 768 pixels. The bundled 8MB SmartMedia card stores seven



to 81 shots, depending on the Fine, Normal, or Basic quality setting selected. Considering the camera has less manual control than other models with a similar resolution, the

PDR-M65 takes respectable images. Our shots featured fine enough detail and focus, but many shots were listless with dull colors. More disappointing were our shots taken indoors, which were somewhat dark even with the flash on.

More positive is the 3X optical and 2X zoom ability of the 8.2mm to 23.3mm lens (equivalent to a 38mm-to-114mm lens on a 35mm camera). The camera also has a macro mode to focus objects as close as 3.9 inches to the lens, and you can take 16 continuous shots at intervals of about 0.25 seconds. As with the scant manual controls, the camera lacks a couple easy-access features on its solid, heavy-duty frame, such as an

external flash unit and diopter adjustment for the viewfinder, which is located directly above the 1.8-inch LCD (liquid-crystal display).

Another plus is the PDR-M65's built-in lens cover and four-way jog button on the back. Combined with the intuitive buttons the camera possesses, managing the playback, setup, and shot-taking menus is a breeze, although the menus are primarily text driven.

The PDR-M65 powers on four bundled AA alkaline batteries but also accepts rechargeable batteries. Overall, the camera leaves something to be desired for advanced users, but at \$475 (ESP), the PDR-M65's ease of use and three-megapixel quality may make a nice fit with those desiring simplicity with a higher resolution. **[E]**

by Blaine Flamig

PDR-M65

\$475

Toshiba

(800) 550-8674

(949) 583-3000

<http://www.toshiba.com>

Philips ToUcam Pro

If the protruding 6mm lens on the front of the ToUcam Pro from Philips hadn't tipped us off, we might have poured a cup of coffee, toasted up a couple slices of bread, and tried to crack this Web camera open for a bit of breakfast. That's because the perfect egg shape of the ToUcam made us a bit hungry. But don't let the camera's gimmicky appearance fool you. The camera is a fine model from a company we've come to expect uniqueness from.

Philips' Web cameras have always incorporated unique twists, turns, and stylish shapes into their designs. The ToUcam Pro follows that lead with an oval, cream-colored frame, bright orange trim, and a three-legged stand. The camera also has a clip to attach to a notebook computer, which is probably a sturdier fit than the skinny-legged stand. Overall, the mount and the camera's lightweight body don't bode well for it sitting securely on a monitor top once the camera's 6-foot USB (Universal Serial Bus) cord is attached to interface with a PC.

More pleasing are the camera's resolution, software package, and overall performance. Resolutions for still images top out at 1,280 x 960 pixels, while you can shoot video at as high as 640 x 480 pixels. The camera grabs 60fps (frames per second) at 320 x 240 pixels. On our test machine, the camera produced fairly sharp and impressive images, complete with good detail. Colors were a bit drab and lifeless, and the camera compensates a bit slowly when pointed at dim and bright light sources. However, the ToUcam's focus and sharpness are on par with most of the better Web cameras on the market.

Uniquely, the camera's built-in microphone and a remote voice control utility let you trigger the shutter button by voice to take still shots. Other software includes Spotlife for Web casting and NetMeeting for videoconferencing. In



addition, Philips bundles several Reality Fusion interactive games with the Web camera.

It's likely that the ToUcam's egg shape and clever overall packaging will entice younger users to at least pick the model up and give it a good once over. Chances are the camera will frustrate those same users initially with its extremely lightweight body and unwillingness to sit still in its stand. But once it does, the

ToUcam Pro is a strong and formidable performer at a respectable price. **[E]**

by Blaine Flamig

ToUcam Pro

\$70

Philips Electronics

(888) 262-2673

(770) 821-2400

<http://www.philips.com>

Micron TransPort

GX+ 850

It's been awhile since we got a look at a full-sized Micron notebook, but we have to say that the TransPort GX+ 850 we recently received from the company was well worth the wait. The notebook is loaded with all the stuff most users will need, performs reasonably well, and at \$2,699, is considerably less costly than other 850MHz notebooks we've tested to date.

Specifications. The TransPort GX+ we reviewed came with an 850MHz Intel mobile Pentium III processor and 128MB of RAM. You can add plenty more memory if you like; in fact, the GX+ can accommodate up to 512MB of PC100 SDRAM (synchronous dynamic RAM). For an extra \$120, you can upgrade from its standard 20GB hard drive to one 30GB in size. The GX+ measures 1.6 inches high when closed x 12.7 inches wide x 10.7 inches deep and weighs 7 pounds, so simultaneous three-spindle access is no problem. It comes with an integrated 1.44MB floppy diskette drive on its right edge next to a modular device bay that holds an 8X DVD-ROM drive in its default configuration. It will also accept a 32X CD-ROM drive, a CD-RW (CD-rewritable) drive, an LS-120 SuperDisk (CD-rewritable) drive, or a second battery if power is a greater consideration than storage space.

The GX+ also comes with an 11.1-volt Li-Ion (lithium-ion) battery, a 3Com MiniPCI 56Kbps (kilobits per second) modem and 10/100Mbps (megabits per second) network adapter, and an S3 SavageIX video chipset. The SavageIX controls the system's enormous 15-inch TFT (thin film transistor) display and comes with 16MB of SGRAM (synchronous graphics RAM), which is a decent amount for notebooks.

We received Windows 2000 Professional with our review unit, but if you prefer, you can choose Windows Me or Windows 98 Second Edition for \$100 or \$99 less, respectively. Micron also preinstalled Microsoft Office 2000 Small Business Edition, Norton AntiVirus, and InterVideo's WinDVD DVD player software.



Features

Processor: 850MHz Pentium III
RAM: 128/512MB
Display: 15-inch TFT
Dimensions (inches): 1.6 x 12.7 x 10.7
Weight (pounds): 7
Hard Drive: 20GB
Optical Drive: 8X DVD-ROM
Connectivity: 56Kbps modem, Ethernet
Final Word: One of the better desktop replacement units you'll find for less than \$3,000; the TransPort GX+ has a huge display, DVD, great input devices, and a fast processor

Design. The TransPort GX+'s case is silver on the outside and dark blue on the inside; it offers solid protection for its delicate silicon innards and looks good at the same time. The display in the lid isn't as bright as some we've seen, but it is quite sharp and looks great, and it's hard to fault a display so large. One aspect of the GX+ we weren't as crazy about is the pair of speakers mounted in its wrist rest. They actually sound OK, although they are a little fuzzy. Because they will fall directly beneath many users' wrists as they type, they'll be muffled and very quiet. In some cases this isn't a big deal, but if you like a little music while you type, you'll either have to pack a pair of headphones or make sure your wrists are elevated properly above the surface of the notebook's wrist rest. This can be especially tough because Micron coats the wrist rest

panel with a layer of a rubbery material that is very easy on the wrists.

The keyboard that takes up the majority of the GX+'s base panel is very nice, combining plenty of space with good tactile feedback. It has a row of cursor control keys arranged along the right end of the keyboard, which we're usually opposed to. We found, however, that they are far enough to the right, and the standard keys (such as BACKSPACE, ENTER, and SHIFT) are wide enough that we didn't suffer from frustrating typos (not any more than usual, that is). The touchpad is both fast and accurate. It comes with up and down scrolling buttons set into the space between its left and right buttons that make moving around through large Web pages and documents a snap.

Performance. The TransPort's 850MHz Pentium III put up performance scores that fall about in the median range among similarly equipped notebooks we've tested. It produced SYSmark2000 scores of 137 in Office Productivity, a robust 173 in Internet Content Creation, and a 151 overall. Its Video2000 scores were also mostly average, including a Video Marks score of 1,306, a Quality score of 603, a 235 in Performance, and a 469 for features.

Final word. Although there are desktop replacement units we'd choose over the TransPort GX+ if money were no object, we think Micron offers a remarkable amount of value for its price. Its performance scores are well within expected parameters, it has a great keyboard and touchpad, and its big display makes DVD movies and other forms of entertainment all the more entertaining. Like its less expensive cousin, the TransPort LT, the GX+ also comes with a two-button optical USB (Universal Serial Bus) mouse, which makes it as easy to control as it is to afford. **GS**

by Chris Trumble

TransPort GX+ 850

\$2,699
Micron
 (800) 214-6674
 (208) 896-3443
<http://www.micronpc.com>

Polaroid PhotoMAX Digital Camera With MP3 Player



There are two things you can't travel without: a camera and a CD player. Polaroid wants to halve that number with its PhotoMAX digital camera, which combines its picture-taking capability with an MP3 player.

This is an eye-catching camera, housed in a transparent blue case and accompanied by a handful of accessories. Among the goodies are a 16MB CompactFlash memory card, USB (Universal Serial Bus) and video cables, camera carrying case, and earphones with volume control built into the cord. These gadgets alone tip you off to the fact this product creates many possibilities.

We started by testing the camera function. It doesn't boast any outstanding features, with a top resolution of only 640 x 480 pixels and a lens that focuses from 2 feet to infinity. These specifications produce grainy photos that will probably appeal only to people taking casual snapshots. Colors were adequately portrayed, but again, the photos

you take with the PhotoMAX will be barely Web-worthy.

The PhotoMAX Image Maker software features a simple interface that should appeal to people who aren't familiar with imaging programs. Polaroid makes one odd request before you connect the camera to the PC: You must open the lens cover to activate the camera's power, which means exposing the delicate lens even though it won't be in use. Our biggest gripe about this camera was its rotating plastic control dial. It's so hard to turn that you have to use a lot of force, causing you to accidentally skip one or two functions when it finally budges. This takes some getting used to.

We did like the video cable that Polaroid includes with this product. Just flip your TV to the proper channel, and you can view your photos right on the screen.

The MP3 functions are also simple to use, courtesy of the familiar CD-player type controls atop the camera. You load music files onto

the camera through the USB cable, and you can instantly connect the headphones and listen to your heart's desire.

The biggest problem is memory; the 16MB memory card won't hold more than a few minutes of music, and photos cannot be left on it at the same time.

This means that to get any real usefulness from the MP3 player you'll have to instantly upgrade to a much larger CompactFlash card, making the PhotoMAX much costlier than the initial \$229 price tag. But despite its shortcomings, this is an imaginative device that is a lot of fun to use if you're willing to indulge it with a better memory card. **[B]**

by Nathan Chandler

PhotoMAX Digital Camera with MP3 Player

\$229

Polaroid

(800) 432-5355

(781) 386-2000

<http://www.polaroid.com>

SONICblue Rio 800 64MB

If you have never looked into a personal audio player, the Rio 800 is a perfect reason to do so. We carried a 64MB version (\$249.95) around with us for a few days, marveling at how quickly we learned to use it. Its friendly LCD (liquid-crystal display) and menu buttons practically invited us to explore. The only sad part of our time with the Rio was sending it back.

The Rio 800 can slip into your pocket or into its included padded case with belt clip, should you prefer. It also comes with a useful remote control that snaps between the player and the reasonably comfortable headphones. A special adapter cable connects the Rio 800 to the USB (Universal Serial Bus) port of your PC or Macintosh to download your music files. We used Rio's power adapter to top off its rechargeable battery (up to 11 hours playing time) and the Audio Manager software to fill the player with our favorite MP3s, and we were off.

This palm-sized work of art sounds rich and clear. You can choose among several preset equalizations or create your own. Besides playing MP3 and WMA (Windows Media Audio) files, the Rio 800 can also take dictation with its built-in microphone. You'll find your voice tracks listed as 32Kbps (kilobits per second) WAV files by date and time, filed separately from your music. Ka-ching! The Rio just became a business expense.

Meanwhile, the Rio 800's expandability could help it avoid obsolescence. You can upgrade its firmware for future audio formats and other technologies. For example, an update from <http://www.riohome.com> would have allowed our Rio 800 to play audio book content from Audible.com. You can also buy Backpack modules with extra memory that snap on the back of the unit. Combined with a 32MB Backpack (\$79.95), our Rio stored about 95 minutes' worth of 128Kbps MP3s. Double that to three hours of music if you use



64Kbps WMA files. The other benefit of a Backpack is that it has its own rechargeable battery. Switching the Rio's default battery pack with a charged Backpack is like popping in fresh batteries and new tunes simultaneously.

Although 96MB was nice, the 128MB Rio 800 costs just \$50 more at \$299.95; the new Rio 800 Extreme packs a mammoth 384MB for \$599.95. With all of its features and versatility, there's nothing about the Rio 800 we don't like. **[B]**

by Marty Sems

Rio 800 64MB

\$249.95

SONICblue

(800) 468-5846

(541) 967-2450

<http://www.riohome.com>

Dell Dimension 8100



The Dell Dimension 8100 is a desktop PC that you can customize to your liking, so we had Dell put together a \$2,000 system for us. The system we received doesn't have quite as much power as most PCs we've seen in this price category, but the 8100 we reviewed is reasonably priced and is powerful enough to satisfy most home users.

The PC has a 1.4GHz Intel Pentium 4 processor and uses the nearly ubiquitous (at least in the home PC market) Microsoft Windows Me operating system. This system's bus speed of 400MHz is better than average. This Dimension 8100 came with 128MB of high-powered RDRAM (Rambus dynamic RAM), which is fine, but many systems in this price class now come with 256MB of RAM standard. Of course, RDRAM is considerably more expensive than SDRAM (synchronous dynamic RAM), so increasing the amount of memory on this system is going to jack up its price in a hurry. You can increase the RDRAM to a maximum of 1GB, which is more memory than most users will need.

The Dimension 8100 has an NVIDIA GeForce2 GTS Pro graphics chip, which is about as good as it gets short of using a GeForce3 chip. The video card has 32MB of DDR-SDRAM (double-data-rate SDRAM). This is an acceptable amount of video memory, but it's less than most PCs in this price class use. Among \$2,000 and up PCs, 64MB of video memory is the norm.

Another way in which the Dell Dimension 8100 parts company with its peers is in the sound card the system uses. Our test

system included a Santa Cruz sound card from Voyetra Turtle Beach, which is a good choice. Most \$2,000+ PCs we've seen have a Creative Labs Sound Blaster Live! Value sound card. The five piece Altec Lansing surround sound speaker system that came with the PC was also really good.

The Dimension 8100 system we reviewed had respectable, though not spectacular storage options. Our test system had a 12X DVD drive, but Dell tells us that it's going to use 16X DVD drives on the Dimension 8100 models from now on. Our test system also had a 12X/8X/32X CD-RW (CD-rewritable) drive. That's a fast CD-RW drive, certainly, but we're seeing a lot of high-end PCs that have a 16X/10X/40X drive. The 40GB hard drive should be rather generous even though many PCs in this price range have 60GB hard drives or greater.

Test results. How well the Dimension 8100 did in our testing depends on your point of view. From a general perspective, the Dimension 8100 did very well in our benchmark tests. But this system struggles to keep up with other \$2,000+ PCs. We prefer a more general point of view, though, so we're not too disappointed in the test results.

The Dimension 8100's SYSmark2000 scores were not too shabby. The system had an Overall SYSmark2000 score of 156. The Dimension 8100's Office Productivity score of 140 is admittedly less than spectacular, but it makes up for that low score with a solid Internet Content Creation score of 180.

The Dimension 8100 fared very well in our Video2000 benchmark. Its total score of 2,596 is definitely higher than average. This system also had a respectable 3DMark2000 score of 7,550. We've certainly seen higher 3DMark2000 scores from really tricked-out PCs, but 7,550 is not bad for a PC with this hardware configuration.

For our next round of tests, we watched a DVD movie and played Quake III to get a sense of the system's multimedia ability. We started with the DVD test, which went really well. In our opinion, the Dimension

8100 is a solid machine for playing DVD's. The video looked great and the sound was excellent. The Altec Lansing speakers provided strong audio power that any good DVD movie needs.

We played a few rounds of Quake III next, and again the system's graphics were pretty good.

Once more, we were

especially impressed with the system's sound. Clearly, the combination of the Santa Cruz sound card and the Altec Lansing speakers is a good one.

If you want a powerful PC without going completely over the top, the Dimension 8100 is a very good choice. It has a user-friendly price tag, and Dell puts some very good hardware in this machine. **[S]**

by Michael Sweet

Features

Processor: 1.4GHz Intel Pentium 4
RAM: 128MB RDRAM
Hard Drive: 40GB
Optical Drive: 12X DVD; 12X/8X/32X (write/rewrite/read) CD-RW
Connectivity: 56Kbps modem; integrated 10/100 network adapter
Graphics Accelerator: NVIDIA GeForce2 GTS Pro
Monitor: 19-inch Dell 991
Chassis: Mid-tower
System Use: Personal
Final Word: A good machine for the price.

Dimension 8100

\$2,077

Dell

(800) 999-3355

(512) 338-4400

<http://www.dell.com>

TEAC 40X CD-540E

THEAC's 40X CD-540E isn't the fastest internal CD-ROM drive on the market, but with a 40X maximum drive speed and a low cost of \$49, it delivers a lot of bang for your buck. The drive expresses its versatility by reading all the standard formats: CD-R, CD-RW, CD-Audio, CDDA, CD-i, CD-Extra, Video CD, and Photo CD.

The 40X CD-540E is compatible with the Windows 95/98/Me/NT4/2000 and Unix operating systems and has an IDE (Integrated Drive Electronics) interface for reliable performance. Before installing the drive, you'll need an IDE sound card or IDE/ATAPI (Advanced Technology Attachment Packet Interface) connector; TEAC provides audio cables, interface cables, and mounting hardware. The drive uses Plug-and-Play technology so it's a breeze to install, and you can mount it either horizontally or vertically.

We tested the drive on an IBM with a 450MHz Pentium III and 128MB of RAM, running Windows 98. We used CD Tach 98 Version 2.00 to measure the drive's

random-access time and full-stroke access time and determine a drive rating. The random-access time was 72ms (milliseconds), which is respectable. The full-stroke access time was 197ms. These are decent, but not stellar, results for an internal CD-ROM



drive, but you might have to spend an extra hundred dollars or more to get a drive that features better access times.

TEAC claims the 40X CD-540E's maximum drive rating is 40X, or 6,000KBps (kilobytes per second), and our testing proved that to be the case. Our testing also

revealed an average maximum sustained data throughput of 6,024KBps. Many CD-ROM drives have maximum drive rates between 40X and 52X, and some are now topping 72X, so this drive is about average.

Because the maximum drive rating is only a measurement of throughput achieved at the CD's outermost tracks, in our testing we also consider a drive's average drive rating. The 40X CD-540E gave us a weighted average of 26.6X. This means that even though the maximum sustained data throughput was 6,024KBps (a 40.2X drive rating), the average throughput was 3,990KBps (a 26.6X drive rating).

In all, the 40X CD-540E is a barebones CD-ROM drive that will give you decent performance without hurting your wallet. It's definitely worth the price. **[B]**

by Cal Clinchard

40X CD-540E

\$49

TEAC America

(323) 726-0303

<http://www.teac.com>

CMS Peripherals Automatic Backup System

"Make it easier," we all say. "Make it easier to back up our notebooks, and maybe we'll keep up with it as we should."

CMS Peripherals aims to take away our excuse. Their ABS (Automatic Backup System) is an external 2.5-inch hard drive with a clever PC Card connector, but that's only half the story. After you install CMS's new ABSplus 4.0 software on your notebook, the Automatic Backup System lives up to its name. As long as you have the ABSplus software set up to do so, the ABS drive will automatically back up your hard drive when you connect it to the notebook. The next time you reconnect the ABS drive, it will back up those files you created or changed since the previous backup (called an incremental backup.) Version 4.0 of ABSplus adds the ability for the ABS drive to take over

as your notebook's bootable drive, just in case your notebook's hard drive fails.

Of course, the ABS drive also acts as a regular external drive, no matter which Windows 95 OSR2/98/Me/NT/2000 notebook you connect it to. The drive backs up each file just as it is. A backup compression scheme would let the ABS store perhaps twice as much data, but it would also mean that

every subsequent notebook you visit with the drive would have to be able to decompress the files to access them. That would be a major aggravation if the original notebook were lost or stolen, for instance. With 2.5-inch hard drives storing more for lower prices these days, an uncompressed file-by-file backup makes a lot of sense.

CMS Peripherals makes the ABS in 6GB, 10GB, 20GB, and 30GB configurations.

The 6GB model we tested cost a cool \$329. Its Type II PC Card connector sits at the end of a tough, flexible ribbon cable that's just long enough to allow the connector to fold back and snap onto the drive for portability.

We couldn't perform our regular benchmarking tests on the ABS, but we did perform some backups from a Fujitsu LifeBook E-6595 notebook with an 850MHz Pentium III, 128MB of RAM, Windows 98 SE, and a Fujitsu 17.1GB hard drive. It backed up approximately 2.4GB in 47 minutes, a transfer rate of about 51MB per minute. The ABS has a three-year warranty. **[B]**

by Marty Sems

Automatic Backup System

\$329

CMS Peripherals

(800) 327-5773

(714) 424-5520

<http://www.cmsproducts.com>

ABS Duron Special

The Duron Special is one of the first PCs we've seen from newcomer ABS, but we have to say we like the company's approach. This smartly configured system is as pleasant to look at as it is to use.

Specifications. With an 850MHz AMD Duron processor (a budget version of the mighty Athlon), this ABS beats up some other systems with 1GHz Intel Pentium III processors. The 128MB of SDRAM (synchronous dynamic RAM) at the end of a 200MHz system bus ensure startling speed for a \$779 PC. A 900MHz version costs just \$20 more.

Our test system came with a 17-inch ViewSonic Optquest Z70 monitor. It has a bigger, clearer display than most at this price, but ABS upgraded it to a Hitachi monitor before press time. ABS also switched from our test unit's swift 7,200rpm (revolutions per minute) Maxtor 30GB hard drive to a similar Western Digital model. The ABS's Creative 12X DVD drive played our "X-Men" movie with superbly fluid action.

A home PC would be only half as useful without some way to connect it to the Internet, so ABS included a 56Kbps (kilobits per second) V.90 Zoom LT voice fax modem with our test system. At the time of this writing, though, ABS lists a PCI (Peripheral Component Interconnect) 10/100Base-T Ethernet card as a standard feature in the Duron Special, along with the same modem our test system had. The Ethernet card makes the Duron Special ready to plug into your cable modem or DSL (Digital Subscriber Line) router, if you have one.

Design. We appreciated the Duron Special's three-button wheel mouse. However, we noticed that its keyboard didn't have any multimedia buttons or hotkeys. ABS did throw in a standalone microphone, though. Finally, a decent setup poster, a color users guide, and a large three-ring binder for the system's software and documentation were included.

Surprisingly for an inexpensive PC, we could easily get our hands inside the Duron Special's

case as if we were upgrading its components. Its 128MB of SDRAM fits on a single memory module, so we had two free DIMM (dual in-line memory module) slots available to us in our test system. The motherboard's maximum for RAM was a full gigabyte. There were also a couple of unused drive bays (a 3.5-inch and a 5.25-inch) and two free PCI slots.

Performance. We noticed problems with



Features

Processor: 850MHz Duron
RAM: 128MB SDRAM
Hard Drive: 30GB / 7,200rpm
Optical Drive: 12X DVD-ROM
Connectivity: 56Kbps modem
Graphics Accelerator: NVIDIA TNT2
Model 64 w/ TV out
Monitor: 17-inch ViewSonic Optquest Z70 (not one of the choices in the online configuration)
Chassis: Mini-tower
System Use: Personal
Final Word: Hot performance for the price; several components changed since our tests.

the SoundMax audio circuitry during our movie and Quake III Arena gameplay. It attenuated or amplified various audio sources from the DVD and sped up Quake III's voices and ambient sounds until we were convinced we were battling Alvin, Simon, and Theodore Chipmunk. This was likely a driver or setup problem we didn't have time to troubleshoot, as the Altec Lansing speakers and subwoofer sounded beautiful playing other types of audio. ABS now lists integrated Intel AC 97 wavetable

sound circuitry as the only audio option today, so the weirdness we experienced with the SoundMax audio may no longer apply.

We had another problem running MadOnion.com's Video2000 benchmarking utility on the Duron Special until we removed the PC's DVD decoder software. This helped the ABS nab a 391 Performance score instead of zero, but it also dropped its Quality rating from almost 1,000 to 677. Still, the 850MHz ABS system's benchmarks are uniformly better than those of the 1GHz eMachines eMonster 1000b (\$933). ABS' choice of an NVIDIA RIVA TNT2 32MB AGP (Accelerated Graphics Port) 4X 3-D card instead of integrated graphics paid off with a relatively impressive 3DMark2000 score of 1,820, more than twice that of its price rivals. We could play Quake III Arena at resolutions up to 1,024 x 768, although it was more responsive at 800 x 600.

Final word. Of course, we have to point out that ABS is a smaller company that's not as established as other big-name computer vendors, so buyer beware. However, if the Duron Special is an indication of the company's earnestness, we think ABS deserves to be considered with the big boys of computing. Besides including Corel WordPerfect Office 2000, PowerDVD 2.5, and other software, ABS backs the system with a three-year parts and lifetime labor warranty. ABS means it, too; spokesperson Hip Lee told us, "The lifetime labor warranty is for real. We do intend to service our machines as long as they are still being used."

The ABS Duron Special turned out to be the best all-around home PC in a recent head-to-head review of sub-\$1,000 PCs. It combines a great monitor, pleasant speakers, overachiever performance, and a DVD drive. We don't usually recommend smaller manufacturers due to some of their "here today, gone tomorrow" track records, but the Duron Special is a very impressive choice for \$779. **66**

by Marty Sems

Duron Special

\$779
ABS
(800) 876-8088
(562) 695-8823
<http://www.buyabs.com>

Canon CanoScan D1230UF

The CanoScan D1230UF flatbed scanner is sleek and easy to use. We were pleased with its color images and scan times, but its grayscale capabilities left something to be desired. The scanner weighs 7.5 pounds and comes with 1,200 x 2,400 dpi (dots per inch) resolution and 48-bit capabilities. It also has a built-in film adapter in the lid for transparencies, negatives, and slides. It's relatively sturdy, with a lid that stays open on its own when you lift it up.

The flatbed scanner has a USB (Universal Serial Bus) interface. Setup was easy following the quick start guide. We liked its software bundle, which includes Adobe Acrobat Reader, Adobe Photoshop 5.0 Limited Edition, ArcSoft Photobase, ScanGear Toolbox, ScanSoft OmniPage Pro, Canon PhotoRecord, and Image Browser. It has a one-touch scan button on the lid and on the front of the scanner, which can scan photos to either Photoshop or ScanGear. You can also fax, e-mail, or copy scans with ScanGear.



Scan times were fast, ranging from 33 seconds to 1:07 (minutes:seconds) at 600dpi. At 1,200dpi, times ranged from 1:02 for a black-and-white photo to just under five minutes (4:47) for a color photo. The results overall were clean, with good detail, contrast, and bright colors; at times, however, colors appeared flat. The black-and-white scan had acceptable shading from black to white and good details in shadow areas. The text scan was clean and had good ink coverage. We were disappointed the grayscale test picked up a low 20 shades of gray, which is far below our benchmark average of 27 shades.

The film adapter also gave clean results. We scanned a 4- x 5-inch color transparency, color slide, and black-and-white and color 35mm negatives. The transparency had good detail, but the shadow areas were a little dark. The slide and negatives also had bright colors and good contrast and detail, although flesh tones had too much red.

Overall, however, this scanner was user-friendly with some great features. The settings were easy to use, and we liked that we were able to preview any adjustments we made, such as histogram, brightness/contrast, gamma, and tone curves, before we did a final scan. This \$349 scanner should be able to handle your basic scanning needs. [B]

by Catherine Geistkemper

CanoScan D1230UF

\$349
Canon
(800) 652-2666
(516) 328-5000
<http://www.usa.canon.com>

Epson Expression 1680 Pro

Epson consistently produces quality scanners, and its new line of Expression 1680 models doesn't disappoint. Although we normally don't review flatbed scanners costing more than \$1,000, we made an exception for the Epson Expression 1680 Pro and found it to be a sturdy, user-friendly scanner. It's heavy, though; the scanner is 5.24 inches high x 13.07 inches wide x 22.13 inches deep and weighs 18.7 pounds. The transparency unit weighs 11 pounds, so you will need to clear some room for this machine. It has 1,600 x 3,200 dpi (dots per inch) resolution and 48-bit color capabilities.

During setup, we didn't encounter any problems. The scanner is USB (Universal Serial Bus) compatible. There's a one-touch start button on top, but you need to set up your scanner software to use it. The software bundle comes with Epson TWAIN (Technology Without An Interesting Name) Pro, which lets you adjust brightness/contrast, gamma, and exposure. The bundle also includes Adobe

Photoshop Limited Edition, LaserSoft SilverFast, Monaco EZcolor, ScanSoft TextBridge Pro, and NewSoft Presto! PageManager.

Scan times were also impressive, ranging from 11 seconds for a black-and-white photo to 24 seconds for a color photo, both at 300dpi. At 1,600dpi, the times were still impressive as the same black-and-white photo took 2:55 (minutes:seconds), and the color photo came in just under 12 minutes. The results were sharp and comparable to the original photos. Colors were bright, flesh tones appeared natural, and details and textures were noticeable. The black-and-white scan was also comparable to the original with good contrast, even in the shadowy areas. The text scan had a clean background and good ink coverage. Despite its high price tag, our only complaint is it only picked up 25 shades of gray in our



grayscale, which is below our benchmark average of 27.

The transparency unit includes film holders, and it can scan positive and negative film slides. It was easy to use, and we liked how the preview lets us zoom in to make any necessary adjustments.

The \$1,149 price tag makes it clear this is a scanner for professional users, and it has the ability to accomplish their scanning needs with great results. However, if you know you're not going to use everything included with the Expression 1680 Pro, you should check out Epson's other Expression 1680 models. [B]

by Catherine Geistkemper

Expression 1680 Pro

\$1,149
Epson
(800) 922-8911
(562) 981-3840
<http://www.epson.com>

CTX EX950F

The EX950F 19-inch display is the latest in CTX International's Executive Flat Series of CRT (cathode-ray tube) monitors. While the monitor displays colors nicely, it's a little rough around the edges in terms of imaging capabilities. Having said that, we need to mention CTX did a great service to its EX950F monitor by lowering the price to \$379 MSRP (manufacturer's suggested retail price). Before the price drop, it was an average monitor for an unreasonable price; now it's a pretty good bargain, especially since you can probably get it from a computer superstore for less than \$320.

The EX950F is easy to install; it uses Plug-and-Play technology and a standard 15-pin VGA (Video Graphics Array) D-sub connector, and it comes with a users manual that's easy to follow. The monitor weighs 48.3 pounds and has 18 inches of viewable screen.

We evaluated the monitor on an IBM running Microsoft's Windows 98 and employing a 450MHz Pentium III with 128MB of RAM and a powerful ASUS v7700 GeForce2 video card. We tested at the recommended 1,024-x

768-pixels resolution with a 75Hz refresh rate and 32-bit color depth. We also tried out the monitor's maximum resolution of 1,600 x 1,200 pixels with a 75Hz refresh rate and experienced similar detail but with a slight flicker.

The EX950F has a .25mm dot pitch, and because of that we expected pretty good imaging. So we were a little disappointed when the images and text we looked at were a bit fuzzy. The monitor handled our diagnostic tests very well overall, especially tests for color, but along the way we noticed some blooming. We also noticed some small moiré effects on the screen during testing, but they weren't noticeable when we ran common real-world applications.

Tests for different fonts and sizes yielded sub-par results, again due to fuzziness, primarily in font sizes of 10 points or less. In our tests for video bandwidth brightness, which compares white lines of varying thickness against a black background, the thinnest white lines lacked brilliance and tended to look gray.



The EX950F provided above average performance when displaying colors. Tests for color registration, grayscale, and color scale were all quite good.

The EX950F has some nice amenities, such as a hard-coated, antiglare, antistatic screen and a

comprehensive, easy-to-use OSD (on-screen display). It isn't a bad monitor, especially with a bargain price tag; however, because you can find other 19-inch CRTs today priced at less than \$300, you should shop around. **[E]**

by Cal Clinchard

EX950F

\$379

CTX International

(800) 266-1491

(626) 709-1000

<http://www.ctxintl.com>

Samsung SyncMaster 955DF

The SyncMaster 955DF is one of the newest models in Samsung's line of DynaFlat flat-screen CRT (cathode-ray tube) monitors. The monitor sports professional grade features, yet it's available for an affordable price. It has a 19-inch screen with 18 inches (diagonal) of viewable area and the screen is treated for antistatic, antiglare performance.

Based on its exceptional .20mm dot pitch, we expected a lot from the 955DF, and for the most part, it delivered. The monitor uses Plug and Play technology and installs quickly and easily using the included 15-pin SVGA (Super Video Graphics Array) D-sub cable. Like most monitors today, this one accepts analog but not digital signals.

The 955DF has a maximum resolution of 1,600 x 1,200 pixels with a 75Hz refresh rate, which is about as sharp as its 1,024 x 768



resolution with a 75Hz refresh rate (the maximum refresh rate at 1,024 x 768 is 85Hz). Both resolutions were flicker-free. We evaluated the monitor on an IBM running

Microsoft's Windows 98 and employing a 450MHz Pentium III with 128MB of RAM and a powerful ASUS v7700 GeForce2 video card.

The 955DF performed nicely during most of our diagnostic tests. For example, screen uniformity, overall focus, and color registration were all above average. We noticed some minor blooming and halo effects when viewing white items on a black background, but no moiré effects were present. The video bandwidth and modulation were excellent for a CRT; the monitor performed as well on this test as most LCDs (liquid-crystal displays) do.

The monitor provided excellent color and shading during our tests for extreme grayscale,

color scales, and intensity level ramps. We also looked at some colorful, detailed images using Adobe Photoshop, and we were impressed by the color here, as well.

Samsung advertises that its DynaFlat screens use an "infinitely flat tube," meaning it won't provide that slight bubble-like sensation around the edges. This can make for more comfortable viewing from a variety of angles.

As a 955DF, the monitor is bundled with a CD-ROM that includes Kool Karaoke Lite software, 500 free hours from America Online, and Quick Links for accessing information about Samsung monitors. All in all, this is an above average monitor at a good price. **[E]**

by Cal Clinchard

SyncMaster 955DF

\$389

Samsung Electronics

(800) 726-7864

(201) 229-4000

<http://www.samsungmonitor.com>

FrontX Multimedia Ports

If you have a crick in your back from reaching behind your PC to plug in your headphones, gamepad, or a USB device, it's time for you to check out the FrontX Multimedia Ports kit. You'll be able to connect a variety of PC devices to the front of your computer after you install this inexpensive upgrade.

The FrontX Multimedia Ports is a plastic frame that fits into an open drive bay in the front of your computer. The kit we received for this review (CPX100) contains a jack for headphones, one for a PC microphone, and a Line In connection. This kit also has a MIDI (Musical Instrument Digital Interface) and 15-pin game port. The interesting thing about this kit is that you have to put it together. Don't worry, it's not hard at all. Basically, each connection is a plastic module that easily slips into grooves molded into the frame. You can arrange the modules any way you like, and there will be room left over for other

modules if you decide to buy more later on.

Each module has a cable you connect to a corresponding connection on the back of your PC. Slip the cables through one of the PCI (Peripheral Component Interconnect) slots in the back of your system and plug each cable into the appropriate port. For example, plug the MIDI/Game module into the MIDI/Game port on your PC's sound card or plug the microphone into the mic jack.

You can buy other modules if you want to upgrade your FrontX Multimedia Ports kit. Front X was kind enough to send us an extra USB module when it sent us the kit (an \$8 value). We popped the USB module into the kit along with the rest of the modules and hooked them up to the back of our PC. Everything worked just as it was supposed to.

We think this is a pretty slick product. It's not very expensive and will be useful for many

PC users. The only problem we have with the FrontX kit is that you have to order it online. The company that makes the kit is based in Malaysia and doesn't have a U.S. phone number. With any luck, it'll have a strong presence in the United States soon. **GS**

by Michael Sweet

FrontX Multimedia Ports (CPX100)

\$25.90

FrontX

No U.S. phone number

<http://www.frontx.com>

AVerMedia AVerE-Pack300

The AVerE-Pack300 from AVerMedia delivers multifunctional slide organization and presentation capabilities, making it easy to create portable slide shows. The AVerE-Pack300 comes with everything you need to get started, including cables for S-Video (Super-Video), AV, VGA (Video Graphics Array), and USB (Universal Serial Bus) hook-ups, software on CD, and a remote control with batteries.

The AVerE-Pack300 can display slide shows on a monitor, LCD (liquid-crystal display) projector, or television set and works with computers running the Windows 95/98/2000/Me operating systems. If you prefer, you can connect the device to a PC using a parallel cable (the same cable used for hooking up a printer) instead of the USB cable, but the parallel cable is not included with the package and this configuration does not work with Win2000.

The visual performance of this device largely relies on the monitor, projector, or

TV set to which it's hooked up. For creating a slide show, we connected the device to a Pentium III system running WinMe using the USB cable, and for presenting the slide show, we connected the device to a CRT (cathode-ray tube) monitor using the VGA cable. We were pleased with the results and impressed by the responsiveness of the controls. We found the remote control to be equally responsive, which is undoubtedly good news for anyone who has struggled with using those unwieldy remote controls that come with some projectors.

The AVerE-Pack300 has some nifty features that let you alter and highlight images or portions of images during slide show presentations.

The device features quick zoom functions to enlarge specific areas of the display, a "spot" function to effectively spotlight a specific area and black out or dim the rest of the display, and an on-screen hand-shaped pointer to keep viewers in synch with the presenter. For presenters who wish they were still using a

good old overhead projector, the device has a "spotlight" feature that hides a portion of the display until the presenter is ready to move on.

The AVerE-Pack300 is an effective device and does everything AVerMedia claims it will do without a hitch. If we could redesign the device, though, we would eliminate the buttons for moving selection areas and pointers up, down, left, and right, and use a joystick instead.

The device has an 8MB CompactFlash slot (a card isn't included) that lets you save slide shows and carry them anywhere. You may already have access to multiple computers, an LCD projector, a TV reserved for presentations, and Microsoft PowerPoint slides that work just fine, but for ultimate portability you can't beat the lightweight, powerful AVerE-Pack300. **GS**

by Cal Clinchard



AVerE-Pack300

\$249.99

AVerMedia

(800) 863-2332

(408) 263-3828

<http://www.avermedia.com>

IBM ThinkPad Transnote

Notebook PCs haven't changed dramatically in the past few years aside from the incorporation of faster CPUs; bigger hard drives; and the adoption of flashy, iMac-like color schemes. For the most part, they look and act the same today as they did several years ago (only faster). IBM's TransNote notebooks, however, are a fairly radical departure from traditional ideas of what notebook PCs should look like and do. At a glance, the TransNote more closely resembles a portfolio or personal organizer than a computer, but don't judge this notebook by its cover.

Specifications. The TransNote is 1.3 inches high x 12.6 inches wide x 11.1 inches deep and weighs 5.5 pounds. Rather than opening it vertically and away from you the way you do with regular notebooks, you open the TransNote horizontally from right to left, the way you'd open a book. The left half of this "book" contains a 10.4-inch TFT (thin film transistor) LCD (liquid-crystal display), which you can flip up and push back to reveal the TransNote's keyboard. The right half of the book is a pad of legal-sized notebook paper we'll discuss later. The PC in the left portion runs on the back of a 600MHz Intel mobile Pentium III processor, 64MB of RAM, and a 10GB IBM hard drive (you can upgrade both). IBM doesn't include an external optical drive or floppy diskette drive (the case is too small to accommodate either), but you can get an optional DVD-ROM drive (\$299), CD-ROM drive (\$239), or diskette drive (\$99) at IBM's Web site.

Standard equipment includes a 14.4-volt Li-Ion (lithium-ion) battery, a Xircom 56Kbps (kilobits per second) modem, an Intel Pro/100+ network adapter, and an ATI RAGE Mobility-M video control chipset with 4MB of video memory. Our review unit came with Windows 2000 Professional preinstalled, but you can opt for Windows 98 and save \$100.

Design. The TransNote's design sets it apart from other notebooks more than any other feature. It is essentially a full-featured Windows PC combined with a notepad that,

Features

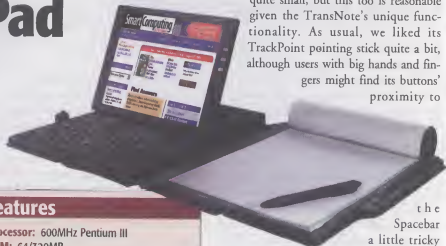
Processor: 600MHz Pentium III
RAM: 64/320MB
Display: 10.4-inch TFT touchscreen
Dimensions (inches): 1.3 x 12.6 x 11.1
Weight (pounds): 5.5
Hard Drive: 10GB
Optical Drive: none standard
Connectivity: 56Kbps modem; Ethernet
Final Word: IBM's TransNote is a godsend to people who like computers but can't help scribbling, jotting, and doodling during meetings; this notebook combines high and low tech in a light, easy-to-carry package.

like the TransNote, offers more than meets the eye. The notepad itself is fairly standard, but the ThinkScribe digital pad beneath it works with the included, connected ThinkScribe pen to capture your handwritten notes for use in the digital realm. IBM's own InkManager Pro software transfers captured handwriting to various applications stored on the TransNote for one-step scheduling and a variety of other handy applications, as well.

Although our TransNote favored right-handers (computer on the left, notepad on the right), IBM offers a special version for lefties that flip-flops those items; either way, the TransNote is a useful, innovative product. Flipping the stowed display up and away from the keyboard is simple enough, and the whole thing is made more convenient by the fact that the display incorporates sensitive touchscreen technology. One slight drawback that comes with touchscreen territory is its increased glare compared to non-touchscreen LCDs, but this is an acceptable tradeoff.

As you might guess, IBM didn't build the TransNote to be a multimedia powerhouse, and as such it doesn't come with speakers for external sound or music beyond standard Windows beeps and chirps. Its keyboard is

quite small, but this too is reasonable given the TransNote's unique functionality. As usual, we liked its TrackPoint pointing stick quite a bit, although users with big hands and fingers might find its buttons' proximity to



the Spacebar a little tricky at first.

Performance. Discussing the TransNote's performance is more about discussing its functionality than quantifying the raw performance of its CPU, but we'll do both. Simply put, we liked how easy the whole thing was to get up and running, and we think IBM did a good job of integrating a notepad with a notebook. There are a number of applications for such an arrangement, and users who still love jotting notes and contact info by hand will love this unit.

The 600MHz Pentium III processor did not turn in outstanding benchmark scores, but its 94 in Internet Content Creation, 92 in Office Productivity, and 93 overall scores indicate that it will handle basic office tasks handily. And again, shoppers in the market for such a device won't buy it for blazing speed anyway. IBM estimates its battery life at 2.5 hours per charge.

Final word. Compared to most current notebook PCs, the computer portion of the TransNote seems a bit underpowered at a glance, but upon closer inspection, you'll find that such a comparison is neither fair nor necessary. The TransNote is in a category all its own, combining elements of work tools old and new to create a hybrid we think is pretty handy. **65**

by Chris Trumble

ThinkPad TransNote

\$3,099
 IBM
 (888) 746-7426
 (914) 499-1900
<http://www.ibm.com>

Fujitsu MAJ3364MP 36.4GB

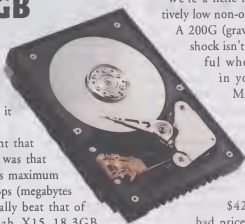
Fujitsu isn't exactly imaginative when it comes to naming its hard drives. Sure, it's easy to guess that the MAJ3364MP is a 36.4GB drive if you're at all familiar with Fujitsu storage products, but that name just doesn't have the satisfying fricatives and plosives of "Cheetah" or "Barracuda." Once again, though, Fujitsu (which *is* rather fun to say) speaks quietly and carries a fast drive.

This Enterprise Ultra/160 SCSI (Small Computer Systems Interface) hard drive has been around for a while, but it's the first one we've had the chance to examine. The MAJ3364MP drive uses five 3-inch hard disk platters and 10 GMR (giant magnetoresistive) heads to reach its 36.4GB capacity. It has a respectable 4MB cache buffer and an all-but-requisite spindle speed of 10,025rpm (revolutions per minute).

This was one of the last drives we tested using our previous test system, which was a 450MHz Pentium III IBM PC with 128MB of RAM, Windows 98 SE, and an Adaptec UW-2940U2W LVD (low voltage

different) SCSI controller. We installed the Fujitsu and benchmarked it with HD Tach 2.6.

The major point that jumped out at us was that the MAJ3364MP's maximum read rate, 43.4MBps (megabytes per second), actually beat that of Seagate's Cheetah X15 18.3GB (41.2MBps). This isn't unique—Seagate's recent Cheetah 73LP topped out at 54.2MBps under the same conditions—but it's just hard to resist using a 15,000rpm drive as a performance yardstick. The Fujitsu's other data-transfer rates helped place this drive squarely among drives such as Maxtor's Atlas 10K-II and Seagate's Cheetah 73. HD Tach reported the drive's random-access time as 8.2ms (milliseconds), slightly higher than we would infer from its 4.7 advertised read seek time.



We're a little leery of this drive's relatively low non-operating shock tolerance.

A 200G (gravities) tolerance of a 2ms shock isn't all that high, so be careful when you're installing it in your PC or server. The MAJ3364MP does have a one million hour MTBF (mean time between failures) rating and a five-year warranty, though. We found the drive online for \$429, which really isn't a bad price considering this drive's capacity and speed. **GS**

by Marty Sems

MAJ3364MP 36.4GB

\$429

Fujitsu

(800) 626-4686

(408) 432-6333

<http://www.fjcpa.com>

Labtec Verse-704

When we usually think of mice and keyboards when we think of input devices, but a desktop microphone is another type of input device whose stock is on the rise. People use desktop microphones for voice chatting, Internet telephone calls, and voice commands to control your PC's software. Labtec's Verse-704 USB (Universal Serial Bus) microphone is better than most of the desktop microphones on the market, so if you're into voice chatting and the like, you'll like this microphone.

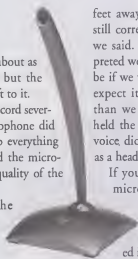
The Verse-704 is a USB microphone, which means that setting it up is about as difficult as plugging a lamp into a wall outlet. We plugged our microphone into a USB port on the back of our test system, and the PC detected it and installed the drivers for it flawlessly. The microphone didn't include a CD with its own drivers because it doesn't need them. We only had to wait about a minute before the microphone was ready to use.

One of the things that we like about this microphone is that it's very sturdy. Most

microphones feel like they're about as durable as a Styrofoam cup, but the Verse-704 has a nice bit of heft to it.

We used the Verse-704 to record several short audio files. The microphone did an excellent job of picking up everything we said, even when we placed the microphone a few feet away. The quality of the sound was also very good.

We decided to raise the stakes a bit and use the microphone for voice dictation, which is something desktop microphones are not really designed for. The problem with using a desktop microphone for speech recognition or voice dictation programs is that desktop microphones tend to pick up a lot of background noise, unlike headset microphones that are only about an inch away from your mouth. We tested the Verse-704 using the voice dictation program built into Microsoft Office XP. The microphone was a couple of



feet away, but the voice dictation program still correctly interpreted most of the words we said. The percentage of correctly interpreted words wasn't quite as high as it would be if we were using a headset, but we didn't expect it to be. The Verse-704 did better than we thought it would. And when we held the microphone and spoke into it, the voice dictation program was about as good as a headset at converting our speech to text.

If you're looking for a general-purpose microphone, the Verse-704 is a smart choice. It's a much better microphone than the inexpensive (and rather wimpy) microphones included in most computer packages. **GS**

by Michael Sweet

Verse-704

\$39.99

Labtec

(800) 732-3053

(702) 269-3612

<http://www.labtec.com>

Labtec Curve-465

If you like to take your portable MP3 player or CD player with you when you jog or work out, you'll need a pair of lightweight headphones. Labtec's Curve-465 headphones are very light, fit comfortably, and they sound great to boot.

The Curve-465 headphones have a somewhat unusual design. The headphones are mounted on ear clips that look a lot like the bows of a pair of glasses rather than on a band that runs across the top of your head. This ensures the headphones will stay put. The headphones don't look very comfortable, but we gave them a try, and after a while we didn't even notice we were wearing them. It felt a bit odd when we first hooked them around our ears; after a couple of minor adjustments, though, they felt fine.

The Curve-465 headphones may be small, but they have a big sound. We hooked them

up to an MP3 player and listened to several MP3s over the course of a couple of hours. The sound was pretty good, especially considering the headphones' small size. We think the higher tones overpowered the bass a little, but it wasn't too bad. We didn't notice any hissing or other problems that can occur at higher volumes. And these headphones are loud! We couldn't come close to maxing out the volume when using them. The Curve-465 headphones have a frequency response of

20Hz to 20kHz, which is very good for a small set of headphones.

Lightweight, loud, comfortable, compact: these are the hallmarks of a great pair of headphones. And the Curve-465 headphones have another appealing feature. They cost less than \$15. These headphones should be the first choice of anyone looking for loud and ultralight headphones. **[E]**

by Michael Sweet

Curve-465

\$12.99

Labtec

(800) 732-3053

(702) 269-3612

<http://www.labtec.com>

Lexmark Optra Color 1200

Lexmark's Optra Color 1200 is the high-end printer in the company's color laser line, but it's not a laser. Instead, this printer uses the more obscure LED (light-emitting diode) technology to create images.

The concept behind its functionality is very similar; therefore, LED printers are often lumped into the laser category. In reality though, LED are cheaper than true lasers but still produce laser-like quality. The 1200 is truly a robust network color printer, yet it's still reasonably priced. Your office can nab it for about the same price as a fully loaded portable PC.

Just by looking at it, you know the 1200 isn't meant for a small workgroup. This is a big printer, weighing 112 pounds and measuring 11.93 inches high x 21.85 inches wide x 26.38 inches deep. Equally hefty are the hardware specifications; a 200MHz processor is included, and our machine was equipped with 64MB of RAM. If your

department prints memory-intensive documents, RAM is expandable up to 128MB.

The 1200 has 75 scalable fonts and two bitmap fonts installed. A parallel cable comes in the box, and Ethernet and Apple LocalTalk network options are also included. If you want infrared capability, though, you'll have to purchase the correct adapter.

Lexmark rates this printer's speed at 12ppm (pages per minute) in both regular text and color documents, which is odd, as text is typically much faster. Our tests provided evidence that black-and-white text doesn't print with amazing speed.

We printed our 10-page trial document at the printer's lowest resolution setting of 600dpi (dots per inch). The first page slipped out in 20 seconds, and the entire file printed at a speed of 9.23ppm. Fonts were excellent, with smooth and dark characters all around.

It took 20 seconds for the 1200 to spit out the first page of text/graphics mix. The sixth and final page was done in 47 seconds, resulting in a 7.65ppm rating. Text on the sidebar

of one graphic didn't show up at all, and a wavy pattern marred the fairly accurate colors. PowerPoint slides showed some speedy times; it took only 32 seconds for three slides to finish, and they all looked sharp.

After we clicked Print for our high-resolution photo, we burned a lot of time waiting for the printer to spool. Nearly half an hour later the image was finally done, which is way too long for a busy office. Plus, the image colors were good but not outstanding. Consider an inexpensive inkjet as a supplement to the 1200 for such jobs.

Both the color and black toner cartridges for the 1200 should yield about 6,500 pages. Black sells for \$92.50, and color cartridges cost \$125. Smaller offices won't need the heavy-duty hardware that comes with this machine, but if your medium to large workgroup needs color on a consistent basis, you'll want to give the 1200 a shot. **[E]**

by Nathan Chandler

Optra Color 1200

\$3,499.98

Lexmark

(888) 539-6275

(859) 232-2000

<http://www.lexmark.com>

Extra Computer Power User Section

Let's take a closer look at features that can only truly be appreciated by you, the omnipotent computer power user. The time is drawing near for some major system upgrades. Join us this month to get the best shopping advice for your upgrade. Then stick around for an in-depth tour of memory and an insider look at the Pentium 4.

The Best Deal On PC Components

A Quick Upgrader's Guide

Online freebies and discounts don't just apply to downloading software or getting a free magazine issue. With a sharp eye, you can also spot ways to maximize value in pursuit of the best deals on new hardware. Naturally, there's a lot more to getting a good deal than finding the best price. The most obvious potential pitfall is shipping costs. You might find an outstanding close-out bargain on an Ethernet card: perhaps only \$35 instead of the usual \$55. But these savings largely vanish when you fail to notice the \$14.95 shipping and handling charge at the bottom of your invoice.

Obviously the needs of a PC owner are different than those of the first-time buyer. You're not interested in monitor and printer bundles so much as component specifications and compatibility for upgrading and building your own box from scratch. Parts buying demands a level of knowledge a step or two above "Here's my \$800; I'll take that system."

So before we launch into looking at sites and strategies for parts shopping, we'll back up and make sure you're up to speed on the bare essentials of today's critical upgrade components. If you're already a cutting-edge hardware whiz, skip ahead. Otherwise, tune in and we'll make sure you've got the necessary information to make the best of your bargain deal.

Get Educated

There are thousands of parts available to comprise and

upgrade any PC, and there's no way you could ever know everything about all of them. But among the most oft-upgraded components, there are certain facts and characteristics on which you should concentrate.

CPU. Intel or AMD? If you're paranoid or insecure about application compatibility, or if you simply want the fastest gigahertz rating on the market, buy Intel. But know that most independent benchmark tests show that the AMD Athlon outperforms the P4 at markedly lower gigahertz ratings and for less money.

No noteworthy incompatibilities with AMD's Athlon/Duron line have come to light. But watch for multimedia support, particularly if you're a high-end gamer. The P4 is optimized to run SSE and SSE2 instructions whereas AMD supports the 3DNow! instruction set. If your apps are geared toward one or the other, buy accordingly.

Motherboard. Most motherboards (sometimes referred to as mainboards) adhere to ATX or microATX form factors, and you'll want to know which your chassis requires before you start shopping. Always try to get as much expansion ability as reasonably possible. We suggest three available PCI slots and one ISA at the very minimum. Make sure the chipset supports the latest standards (ATA/100, for example) and you have room to double or even quadruple your RAM without needing to remove any modules. Your board should have full legacy port support and as many USB ports as possible. (Be sure to watch for USB 2.0 support heading into 2002.)

Higher-end users may want to target boards with extra integrated features, such as Ethernet, IEEE 1394, IDE-based RAID, or on-board SCSI. While these features

may not sometimes provide the full depth of functionality of their plug-in counterparts, they do save on expansion room. However, most mainstream and all high-end users will want to avoid integrated video features, which suck memory away from system RAM and are far slower than most AGP card-based solutions.

Chassis. In an effort to make the system's physical size smaller, many vendors only provide one available internal 3.5-inch hard drive bay and one external 5.25-inch bay, leaving you precious little expansion room. Unless you plan to clutter your desk with a plethora of devices, opting for a mid-tower configuration, while perhaps less fashionable, will save you both space and money.

If you're moving to a top-end P4 or Athlon CPU, be sure to make sure your chassis comes with at least a sturdy 300W power supply. Also



examine the inside of the case. Are the metal edges smooth and filed down so you don't slice your hands? Do the bays slide or snap out easily? Do the top and side plates attach firmly without a lot of manhandling? Designs where the entire motherboard slides out are less common but very convenient.

Memory. The type of memory you buy will be determined by your motherboard. If you have a choice, opt for DDR over standard SDRAM and know that RDRAM for P4 systems is not the extortionately priced behemoth it once was. Note that Intel should already have its i845 chipset as you read this; the i845 lets the P4 run with PC133 SDRAM. Be careful to buy modules with the correct speed for your CPU and motherboard. If you're upgrading a name brand machine, you may need to buy certain models of memory that aren't industry standard. Refer to your motherboard or system manual (or the vendor's Web site) for a list of memory modules that are approved for your configuration.

Hard drive. As with RAM, you can never buy too much hard drive capacity. Unless you're running a server, chances are you won't need SCSI interface drives, but make sure you purchase an ATA/100-compatible drive, not an older ATA/66 model. IBM (<http://www.ibm.com>), Western Digital (<http://www.wdc.com>), and Maxtor (<http://www.maxtor.com>) tend to be the top names in this area. If you've been playing the IDE upgrade game for some time now, you may have amassed three or even four drives, exceeding (after counting in optical drives) your motherboard's limit of four IDE devices. This is when an IDE RAID controller, such as those made by Adaptec (<http://www.adaptec.com>), comes in handy. You may take a hit on total capacity, but RAID will let you keep your extra drives in service and significantly boost your data security.

Video card. Gamers and multimedia whizzes will want AGP 4X controller cards based on DDR memory. The two leading video chipsets are made by NVIDIA (<http://www.nvidia.com>) and ATI (<http://www.ati.com>). For a full capture/decoder/gaming solution, nothing beats ATI's latest RADEON cards, but NVIDIA still

holds the lead for raw gaming horsepower with its GeForce3 GPU. ATI, Matrox (<http://www.matrox.com>), and others now offer affordable cards with multiple monitor support, so you can spread your Desktop and applications across two screens. In truth, though, driver stability matters a lot more than one or two extra refresh cycles, so make sure your card's manufacturer hosts a friendly, thorough support site with a steady history of driver updates.



Optical drives. Despite the slowness with which DVD has penetrated the market, we still feel this is the direction toward which the market is headed. Certainly, you want a CD-RW drive, and make sure you buy one with BURN-Proof technology to prevent buffer underruns. We think you'll soon see recordable DVD making strong inroads into mainstream systems. Support for DVD-RAM is ebbing, DVD-R/RW is on the rise,

and DVD+RW is still a big question mark. Pioneer's new DVR-A03 drive (<http://www.pioneerelectronics.com>) shows particular promise. We recommend having both CD-RW and DVD-ROM functionality in your systems, and, if your budget allows, moving up into recordable DVD for your data and multimedia archiving needs. This would eliminate a large part of the need for an archaic tape backup subsystem.

Pick Your Parts

Whether you're upgrading or building your own machine, by now you've probably got a fair idea of which parts to target. To illustrate, we decided to take an old Pentium III 800MHz machine and upgrade it to a P4 1.7GHz platform with 512MB of RDRAM, 75GB IBM Deskstar hard drive, and an NVIDIA GeForce3-based AGP card. Prices you see below were accurate at press time; expect prices to be lower by the time you read this.

Of course, we'll need to replace the motherboard: old PIII-generation chipsets won't run P4 processors, especially the new .13-micron variety. At this writing, P4 motherboards with 478-pin CPU sockets weren't available, so we targeted the older 423-pin format on boards compatible with our chassis' ATX form factor. If we were trying to upgrade a name brand box like a Dell or Compaq, we would probably need a new case.

A Variety Of Vendors

There are hundreds, if not thousands, of PC hardware suppliers to choose from online, some of which run top-flight, national-scale operations and others that operate on a tiny skeleton crew from a garage-sized warehouse. We could go into detail about all the red flags associated with merchants you should avoid—poorly documented warranties, little to no phone support, extortionate shipping rates, and more, but let's concentrate instead on vendors well worth your time to investigate.

Amazon.com

The value of shopping at Amazon is not finding the lowest price but having the most convenient, informative tools at hand. If you've shopped here before, you

Ready to upgrade not just the performance but the breadth of features your video card can provide?

Try ATI's All-In-Wonder RADEON adapter, which supports everything from video capture to TiVo-like live TV pausing.



already know how easy the site is to search and navigate. You're in the right place once you find your way to Electronics, Categories, and Computer Add-ons.

Amazon is fond of letting you know how much of a discount you're getting off of retail, but don't be too easily impressed. A Visiontek 64MB GeForce3 card sold for \$467.99. IBM's 75GB 75GXP drive was a hefty \$347.99, and even the one used model Amazon offered was \$275. Keep an eye out for free shipping offers (typical around the holidays) and discount offers in certain product areas to sweeten the deal. Rebate offers are sporadic, so stay alert for them.

The Amazon.com Web site is filled to the brim with help and information that its users truly appreciate. We were also pleasantly surprised by the memoryfinder, which helps guide users to finding the right memory modules for their name brand systems, although finding universal RDRAM proved a bit difficult since it was listed under SDRAMs & DIMMs. (Viking 800MHz 256MB RIMMs were selling for \$153.99 at the time of this writing, which is not bad.) Of course, Amazon's editorial and user reviews are second-to-none, as is the company's renowned customer service. It's your call to weight the value of price against service.

<http://www.amazon.com>

Are You Compatible?

Few things are more aggravating than bringing home a new piece of hardware only to find it won't work in your system as expected. Many such situations can be traced back to a few key oversights. Here are a few pointers to make sure your purchases are as compatible as possible.

1 Do you have the right hard drive cable? Nearly all new hard drives are ATA/100-compliant, which is a worthwhile improvement over ATA/66 or the significantly older ATA/33 standards. But unlike ATA/33 or ATA/66, which could use the same data cable, ATA/100 requires a different, higher performance cable in order to achieve the protocol's full potential speeds. ATA/100 cables generally come with a blue rather than black connector that plugs into the motherboard's IDE connector. If your new ATA/100 hard drive doesn't come with an appropriate cable, make sure you order one—and make sure it features two drive

connections, not one, so you have room to upgrade.

2 Is your RAM the right type? It's hard to confuse RDRAM and DDR SDRAM; the two formats won't fit in each other's plugs. The biggest RAM gaffes occur when buying standard SDRAM. It's fine to run PC133 memory on a board only rated for PC100. However, running PC100 on a system capable of PC133 will only create performance bottlenecks. Be sure to check your motherboard's manual to find out your maximum memory speed and buy accordingly. The same holds true when evaluating different speeds of RDRAM.

3 You may be buying the latest AGP 4X video card, but is the slot on your motherboard 4X-compatible? Older boards may be only compliant with the 1X or 2X protocols. Double-check before you buy.

4 As with hard drives, optical drive cabling

can be a problem—the audio cable in particular. The small, four-wire cable that connects your drive to your sound card in order to play CD Audio can have several different connectors. When you get ready to change out either of these parts, note the audio cable connector style and make sure your new cable matches accordingly.

5 Buy recognizable name brands. This may seem obvious, but experienced PC owners often get overconfident and are willing to risk buying an unknown brand in order to save money, figuring they have the know-how to fix problems. Unfortunately, many lesser-known companies are obscure for a good reason. You might be able to sort out IRQs and install OS patches, but no amount of savvy can fix a conflict with another part caused by poor firmware, compounded by lack of software updates and lack of tech support. Stability is worth paying for. ▲

Buy.com

No longer engaged in selling at a loss to gain market share or habitually running short on the best-priced stock, Buy.com is a much friendlier place to shop than in years past. The prices are still low, the site claims a price-matching policy, and the service and interface are much improved.

We were disappointed to find that Buy.com didn't carry an Intel processor faster than the P4 1.5GHz during our search. IBM's 75GB drive was \$259.99 in a retail box but \$249.99 as a bare drive. The cheapest price we found on a non-proprietary 800MHz 256MB RIMM was \$195.95 for a Viking module.

What Buy.com lacks in reviews, ratings, and educational material it tries to make up for in special deals. At the top of the Computers page, below the search field, you'll see links for weekend specials and the clearance center. While the promotions vary, a standard weekend special is free shipping on select items, sometimes even large ones like printers. The clearance center is a great place to score cheap deals on upgrade parts for past-generation systems, such as an IBM 10GB hard drive for \$85 or a Sanyo Socket A-compatible bare bones system for \$152. Add these tidbits to your Buy.com Wishlist, and be sure to catch the rebates links at the bottom of the left column on the Computers page, among other occasional places.

<http://www.buy.com>

Computer Geeks Discount Outlet

This site specializes in surplus and close-out parts, along with a liberal sprinkling of new equipment, slanted at the do-it-yourself upgrader. Don't come here expecting the same breadth of models you'll find elsewhere, but extremely cheap deals abound. Computer Geeks didn't carry our IBM 75GB drive, but it did offer Western Digital's 80GB Caviar for \$196; that's over \$40 less than most competitors. Each part is tagged as being Mac- or Linux-compatible, aimed at gamers, refurbished, and so on.

Computer Geeks doesn't offer lots of promotions or rebates; all the discounts are built into the prices already. But look up at the top of the home page off to the right and check out the Drivers link, wherein you'll find a sprawling list of drivers and utilities. Beside this is the Tech Help link, gateway to over a dozen different intermediate-skill guides for installing various PC components.

<http://www.compgeeks.com>

Egghead.com

Egghead, the one-time king of retail software, has done an admirable job of building an online storefront that delivers both excellent value and lots of computer-related promotions. With its long row of tabs and intuitive category/brand navigation, you'll have no trouble finding whatever you need if Egghead carries it. We only found one listing for a RIMM module (out of stock) and several other items that were "allocated."

At the bottom of the left column, you'll see a box for Egghead Deals, but this turned out to be a page at which to register for the site's many e-mail newsletters, so you'll need to check your mailbox for hot price drops. Comb through the Promotions listings off in the right column where you'll find everything from recent price cuts to limited-time free Internet access incentives. (Confusingly, the Downloadable Software link does not lead to freeware or even shareware.) One of the tabs along the top is for Egghead's Clearance area, which, while not extensive, does offer some good bargains while stock lasts. Lastly, if you're in the market for older systems, Egghead's Auctions area has some noteworthy deals; unfortunately, the parts pickings here are meager at best.

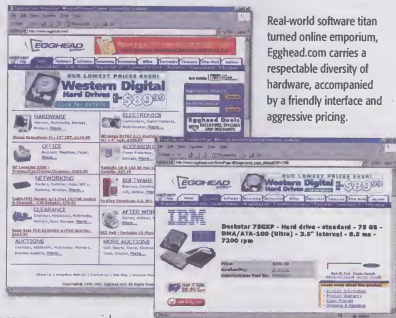
<http://www.egghead.com>

Outpost.com

One of the oldest major hardware sales sites, Outpost.com is smart, highly navigable, and one of the easiest sites we've seen to quickly locate a specific product. One of our favorite aspects in the site is its propensity for offering kits and bundles, such as the Build Your Own Pentium 4 Kit, packing in just a little extra savings and appealing to more tech-minded users.

Outpost's price was \$559.95 for the P4 1.7GHz, bundled with two 64MB RIMMs, and \$189.95 for Intel's D850GBC motherboard. Visiontek's 64MB GeForce3 was \$379.95, although slightly more expensive bundles were also offered. The Deskstar 75GXP was \$259.95. All in all, we found Outpost's prices reasonable and never once encountered an out-of-stock item. The site excels at offering similar or compatible products, such as a suggested chassis with the motherboard details.

The site's one deficiency is that it tends to hide its specials. From the main PC Hardware & Software page, you'll see a line of promotions down the right edge of the screen (hard drives starting at \$75 or free



Real-world software titan turned online emporium, Egghead.com carries a respectable diversity of hardware, accompanied by a friendly interface and aggressive pricing.

paper with certain printers and more). You might think that the Clearance tab at the top of the screen leads to rock bottom deals, but it didn't offer a single computer-related product when we checked it. Instead, we found the specials through the PC Clearance link, a small box at the bottom of the main PC page's left column. Shipping prices are quite reasonable, and any order over \$500 ships for free. Also don't miss Outpost's participation in the ClickRewards program, which compensates your purchases with frequent flyer miles.

<http://www.outpost.com>

The Crowd At A Glance

When shopping for PC parts, visiting even the major vendors can seem like an overwhelming task. Fortunately there are tools to help you efficiently assess the playing field:

comparison shopping sites. Use these tools to quickly comb through dozens of sellers to find the best prices on the parts you need.

BizRate.com

Another standard-issue comparison shopping site in many ways, BizRate's forte is using customer feedback to construct ratings for vendors that volunteer to be part of BizRate's evaluation process. The overall rating is a reflection of 10 criteria ranging from product selection to customer support and can be an

extremely useful tool if you're ever in doubt about a vendor that might be "too" cheap. In general, BizRate prices were competitive, although the search engine sometimes missed our term because of an intolerance for terminology; for example "IBM 75GB" versus "IBM 75 GB". Click on the Special Offers tab near the top of the site to find discount, free shipping, and rebate specials from select sources, each of which is listed with its expiration date.

<http://www.bizrate.com>

NexTag

Half metashopping site and half classified ads network, NexTag may not have the biggest name-brand vendor base behind it, but it does pony up some of the best bargains around. Searching or browsing the

Computers area is easy, and results tend to be very accurate. You won't find conventional vendor reviews here, but there are user reviews, which can be more useful. You also get product images when possible and price histories (showing the unit's price points over time), but the site's best feature is the ability to concurrently compare prices on new parts with new, used, or refurbished parts supplied through

Top 5 PC Component Buying Sites

- NexTag
- BizRate.com
- Outpost.com
- Buy.com
- PCToday Supersite



Source: Smart Computing

the site's classified ads. Obviously, this feature is less useful for cutting-edge equipment, but if you're trying to upgrade an older machine, say with a PIII chip or PC66 SDRAM, this may be your ticket to some really cheap deals.

<http://www.nextag.com>

PCToday.com Superstore

A good site to hit early is PCToday.com. Click the Find PC Products For Sale link on the home page. This leads you to a long list of PC components arranged by type. If you feel like browsing among numerous manufacturers for a kind of product, click the appropriate link. If you know the exact model (or description) of your desired product, click the Detailed Search link, then fill in the necessary data on the following Product Search page.

Advantages of PCToday.com over other comparison shopping sites are the quality of entries and depth of information. Most sites use automated routines to accept and post vendor database info; PCToday.com employs human staff to review each product listing and ensure that you're not faced with endless variations on one product (for example, having one entry for a "Pentium 4 1.8GHz" and another for a "Pentium 4 1.8 GHz"). The site isn't bogged down with advertising or unnecessary graphics, but you do often get voluminous amounts of information about both the products and, more importantly, the vendors: everything from contact numbers to warranty and return details. (NOTE: Sandhills Publishing is the owner of the Smart Computing Guide Series publications and PCToday.com.)

<http://www.pctoday.com>

Winshare.com's Best Price

With a slight spin on the shopping metasearch model, Winshare.com's Best Price is actually a client-side application that queries multiple shopping sites at once. The search options box lets you select from up to 16 shopping sites, including Yahoo! in the UK and Australia, if that's of any use, and search sessions can be saved for future recall. The interface resembles a standard Windows Find box with a few worthy embellishments, although it feels crowded at times. Unfortunately, we found the search results a bit lackluster. Some searches seemed never to conclude and you'll likely have to try several searches to narrow down the results you want. (For example, our first search for "Pentium 4" yielded everything from boxed CPUs to a 4MB

EDO SIMM module.) Roughly half of the hits offered no vendor rating, but you do have the ability to sort by price, alphabetical listing, vendor, and more. At the very least, Best Price is a good way to discover low-priced vendors you might have otherwise missed. The freeware download only lets you survey up to four



A flood of vendors both large and small fuels Yahoo! Shopping; sometimes the little sellers offer the sweetest deals.

sources; paying the \$26.95 registration lets you query all vendors at once.

<http://www.winshare.com>

Yahoo! Shopping

Under the hood, you'll find vendors ranging from major national wholesalers to small, local retailers. When we searched for our 75GB

IBM hard drive, Yahoo! Shopping offered a chart showing the many vendors selling the drive and the price computed with shipping included; that's a great feature when assessing true cost. Unfortunately, Yahoo! didn't offer the same type of chart for all its products, and we were often only able to find a product, such as RDRAM, by doing a keyword search, not through category browsing.

On the Computers page, nestled amidst the profusion of promotions, is a small area called Buyer Resources, featuring a link to Consumer Reports reviews, buyers guides, and video overviews. Consumer Reports isn't free, but you do get full, 30-day online access to reports for \$2.95, which is a cheap admission price if you're hunting for peripherals. The buyers guides are free, but they only cover peripheral topics like PDAs and digital cameras and there are few subjects. Video overviews provide largely non-technical streaming video introductions to certain products, such as Pinnacle's DV500 capture card or Intel's wireless base station. Be sure to scan the vendor promotions (located below the Buyer Resources area), because it often features free shipping or access to refurbished goods.

<http://shopping.yahoo.com/computers>

In general, we advocate starting your shopping experience with comparison sites because you'll soon begin to recognize which vendors dominate your query returns. Hardware sales are a constantly changing game, and tying yourself to one merchant can be a costly mistake. Even if you settle on a company like Outpost.com or Buy.com, be sure to occasionally consult two or three comparison engines to make sure your favored merchant is still making the grade.

Ultimately, though, comparison sites can route you to aggressive prices, but the true bargains of hardware buying arise from sellers that provide the best pre- and post-sale experience. The more complex and critical your upgrade, the more help you're likely to need. Just as you prefer to try a new part before you buy it, try out the dealers before you commit. Pore over their Web sites, and then give a call to their sales staff. Find out how strong of a human touch you get. A friendly, helpful human representative is likely to strike the best bargains of all. **ES**

by William Van Winkle

X-Ray: Inside The Pentium 4

We've been wondering what an Intel Pentium 4 would look like if we peeled it open. We're not that brave, though, so here's our simulation instead.

The P4 has an advanced design that's very different than the Pentium III's or AMD-Athlon's. Its chief benefit, at least until software developers take advantage of its special features, is its ability to reach higher clock speeds than its competitors. It's also adept at processing 3-D graphics, encoding/decoding audiovisual data, and other multimedia tasks.

The latest P4 at this writing runs at 1.8GHz. It performs 1.8 billion processing

cycles per tick of the system clock, which is based on a crystal akin to the quartz in a wristwatch. The P4 automatically tries to gather extra data by anticipating what a program will require next. This hardware prefetch speeds programs up more consistently than the prefetch instructions built into some applications. Of course, this feature works best with applications requiring contiguous data, such as audio and video players.

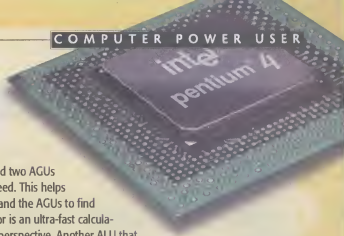
Another important feature that's hard to show in our diagram is the P4's set of 144 additional, optional instructions for multimedia processing. Together with the 70 pre-

vious instructions from the Pentium III, this set is called SSE2. Once software designers write their programs to take advantage of SSE2 (Streaming SIMD [Single Instruction Multiple Data] Extensions 2), the P4 should really come alive.

For more information on how microprocessors are made and how they are going to be made in the future, see "Manufacturing Microprocessors" at our Smart Computing Web site (<http://www.smartcomputing.com/guide/0910/microprocessor>).

(NOTE: Die placement is approximate.)





1 Advanced Dynamic Execution Engines

Like any superscalar processor, the P4 can work on several instructions at once. Dynamic execution simply means the chip can decide which instructions to process first for the best speed.

2 Rapid Execution Engine

The P4's rapid execution engine has two ALUs (arithmetic logic units) and two AGUs (address generation units), all of which run at twice the processor's clock speed. This helps the ALUs process math problems at twice the CPU's frequency in gigahertz and the AGUs to find the data the ALUs need in memory. At its most basic level, a microprocessor is an ultra-fast calculator, so doubling the ALUs' speed is a good move from a performance perspective. Another ALU that runs at single clock speed helps out.

3 Execution Trace Cache

The P4 doesn't have a typical L1 cache for nondecoded instructions as do Pentium IIIs and Athlons. Instead, it uses an Execution Trace Cache to store instructions that have already been decoded and broken down for processing. If the P4 needs these instructions often, which realizes the benefit of a cache, it won't have to decode them each time. This helps things hum along.

The P4 does have a tiny, traditional L1 data cache, which keeps 8KB of data on the P4's die, ready to supply it in a hurry. The L1 data cache is 4-way set associative, meaning it can store up to four 64-byte cache lines (units of data) from each segment of RAM. It's also write-through, meaning it takes the time to write data changes to L2 cache even when the CPU is busy.

4 L2 Advanced Transfer Cache

The P4's L2 on-die cache keeps a copy of the L1 data cache's information in memory that's almost as nimble. It's much bigger, though, at 256KB. The *Advanced Transfer* part of its name refers to its massively wide 256-bit path to the processor's core. The L2 cache is 8-way set associative. It moves data in 128-byte cache lines at a time, twice the amount of the L1 cache. It runs at the same speed as the processor, such as 1.8GHz.

5 Enhanced Floating Point/Multimedia Engine

Some mathematical problems don't follow the exact decimal system that the rapid execution engine prefers. The FPU takes care of fractions and other troublesome numbers that 3-D graphics programs and games throw its way.

6 Pipeline

Intel's hyper pipelined technology is the key to the philosophy behind the P4, which is to get the instructions the processor will need approximately 20 steps down the road and arrange them for the fastest overall execution. In contrast, the Pentium III has a 10-stage pipeline, while the Athlon has 10 stages in its integer pipeline and 15 in its FPU pipeline. Of course, the problem with pipelining so many instructions (up to 126, Intel says) is that it's likely some will be wrong. This can seriously slow the P4 down, so Intel worked hard to make the processor's branch prediction units smarter. The result is fewer wrong guesses and faster computing.


7 System Bus

Rambus-compatible P4s come with 423-pin PGA packages, while newer SDRAM-compatible P4s get 478-pin PGAs. Both use a clock-quadrupled 100MHz system bus (effectively 400MHz) to address an even number (usually two or four) modules of Rambus memory, for a total bandwidth of 3.2GBps.

Compiled by Marty Sems
Graphics & Design By Jason Codr & Stacy Peters

White Paper: RAM

Memory Hits Its Stride



Computer memory and money have a lot in common. Inflation continually eats away at the buying power of your money; memory-hogging software and operating systems continually eat away at your computer memory's power. The comfort of your life improves when you increase your salary; the comfort with which you can operate your computer improves when you add more memory. And no matter how much of either item you have, it never seems to be enough.

Even though computers contain different kinds of memory, random-access memory, or RAM, is what people refer to as computer memory. RAM consists of the memory chips in the main memory area where data is stored while you're working on it. While significant developments in RAM technology were rare in the first two decades of personal computing, that's changing. Different types of RAM introduced recently and those on the horizon promise important changes to the speed and efficiency with which your computer runs.

If you're interested in these developments, you should read on because we'll discuss the world of RAM in detail. And if you think computer manufacturers call computer memory "RAM" because of the way you bang your head on your monitor each time you see an "out of memory" error, you need to read on.

How RAM Works

RAM takes its name because the computer can access any cell of the memory chip if it knows the location of the cell.

The computer accesses the cells in a random order.

The memory cell. Manufacturers construct RAM chips in a fashion similar to a microprocessor chip. In the most common type of RAM, DRAM (dynamic RAM), RAM chips consist of millions of transistors and capacitors. (Most people refer to DRAM and RAM interchangeably.) Each transistor/capacitor combination represents a memory cell where 1 bit of data is stored. Manufacturers etch the RAM cells on a silicon wafer in a series of rows and columns. The computer identifies each RAM cell by its location, called the cell address.

The bit in each cell is either a 1 (also called on) or a 0 (also called off). The computer then reads the binary language of 1s and 0s to understand the data stored on the RAM chip. The actual electronic data that determines the 1s and the 0s is stored in the capacitor.

A capacitor can hold electronic charges. If the cell has a charge of 50% or higher, it holds a 1. If the cell's charge is less than 50%, it holds a 0. The RAM cell uses the transistor to communicate with the rest of the computer, either passing the binary data stored in the cell to the computer or letting the computer change the data stored in the cell. Because the cells can only hold the charges for a fraction of a second, the computer must recharge each cell on the RAM chip thousands of times per second. This continual need to recharge the cells is where dynamic RAM takes its name.

You can think of the electrical charge in a RAM cell as an empty hourglass (which would have a charge of 0) that's open on the top and bottom. To change the charge to a 1, you can think of the computer filling the top of the

hourglass with sand (with the sand being equal to an electrical charge). However, this is only a temporary solution because the hourglass continually loses sand through the bottom. Consequently, the computer must continually fill the top of the hourglass with sand to hold its charge of 1. To change the charge to a 0, the computer would let the sand run out through the bottom of the hourglass.

RAM vs. other storage methods. RAM is different from the type of storage memory on your hard drive. Data stored in RAM is temporary; as long as the computer has power, the computer can recharge the RAM chip cells and maintain their 0s and 1s. However, if the PC loses power, any data stored in the RAM chip is lost because the computer is unable to refresh the electrical charge. Data stored on a hard drive uses magnetic charges rather than electrical charges and doesn't need constant refreshing; it's a more permanent form of storage. That's why you need to save periodically while working; this act transfers the temporary data in RAM to a more permanent storage solution on your hard drive.

Some people refer to hard drive space as memory, but the term memory is actually synonymous with RAM. Some people also think that RAM is the opposite of ROM (read-only memory), but RAM and ROM are more similar than different because they are both types of memory and they both store data. However, ROM contains the operating instructions your computer needs to run when it boots. Usually, these instructions never change; the ROM area remains static, unlike DRAM.

RAM in Action

When your computer boots, the RAM cells are all at 0 because they have no electrical power. The computer initially loads data from the ROM area, telling it how to test its components. As part of this process, the computer usually tests the RAM cells. (You'll sometimes see this check occurring during startup when the computer display runs through a series of

RAM Timeline

1971

Intel introduces first dynamic RAM chip (1KB/1,024 bytes), called the 1103.

1977

Several early PCs are introduced; most contain 4KB or less of RAM.

1984

Computers begin appearing with 640KB of RAM.

1987

FPM DRAM (fast page mode dynamic RAM) is introduced.

1992

The introduction of the graphics-intensive Windows 3.x operating system further fuels the need for larger amounts of RAM, about 4MB.

1981

Microsoft co-founder Bill Gates says 640KB of RAM should be enough for anyone. Computers typically ship with 16KB to 64KB of RAM. Users pay about \$5 for 1KB of RAM.

1989

Most new PCs ship with at least 1MB of RAM.

Computer RAM Specs

RAM has come a long way over the years. Here's a list of personal computers and the amounts of RAM that came standard in the year listed. Outside of the earliest PCs, most of the computers here would be considered midrange systems and are intended to be a representative of the average types of computers available during that year. ▲



1975 MITS releases the Altair 8800 with 256 bytes of RAM.



1977 Apple II, Commodore PET, and Tandy TRS-80 are all released with 4KB of RAM.



1979 The Commodore PET computer is upgraded to offer 8KB, 16KB, or 32KB of RAM.



1981 The Commodore 64 is released with 64KB of RAM.



1983 IBM releases the XT with 128KB of RAM.



1984 Apple releases its first Macintosh PC with 128KB of RAM. Later in the year, Apple upgrades it to 512KB of RAM.



1986 IBM releases PC XT 286 with 640KB of RAM.



1988 Commodore releases Amiga 500 with 512KB, expandable to 9MB.



1990 Apple releases Macintosh SE 30 with 1MB or 4MB of RAM.



1992 Compaq releases the Presario 425 with 4MB of RAM.



1994 Gateway releases the Family PC with 8MB of RAM.



1996 Acer releases the P200 with 32MB of RAM.



1998 Dell releases the Dimension L500c with 64MB of SDRAM, expandable to 512MB.



2000 IBM releases the PC 300PL with 128MB of SDRAM, expandable to 1GB.



2001 Hewlett-Packard releases the Pavilion 9800 with 256MB of DDR SDRAM, expandable to 2GB.

quickly increasing numbers.) Most computers using non-parity memory chips, or chips that don't contain error-checking features, perform this memory check when the computer boots and never check the memory again after that. A dozen or more years ago, error checking was an important feature for RAM chips because of common errors in the data storage. Because today's RAM chips are extremely reliable, error checking is a rare feature in newer RAM chips.

After running component checks, the computer begins loading data into the RAM cells, including information about the OS. Any of the OS components the CPU will probably access frequently usually end up in RAM for the duration of the computing session. The loading of OS components into

RAM decreases the amount of RAM you have available for other applications.

Once the OS has loaded, you're ready to begin working. When you load an application, such as Microsoft Word, the microprocessor loads the components needed to run the application into the RAM cells. As you create a document, it is also stored in RAM. While you work on different aspects of the application, data continually moves from RAM to the microprocessor and back. Millions or billions of bits of data can move between RAM and the microprocessor per second.

Each time you save your work, RAM passes a copy of the document to the hard drive for more permanent storage. A copy remains in RAM as long as the document is open. Data

continually moves from the hard drive to RAM and back, too. Once you close the document and the application, the computer removes those components from RAM. Occasionally, some stray data may remain in RAM; this could eventually cause some "out of memory" errors in your computer if you don't reboot before the error occurs. Some malfunctioning software packages might not remove themselves from RAM, causing system crashes.

Speed It Up

As you can see, being able to access the RAM cells extremely quickly is vital to the overall speed with which your computer can work. To improve the computer's overall speed, engineers want to minimize the amount

1993 More than \$10 billion worth of DRAM is sold.

1996 Memory manufacturers flood the market, causing prices to drop significantly to around \$5 to \$10 for 1MB of RAM.

1998 The Windows 98 operating system requires 32MB to 64MB of RAM.

1999 Users pay about \$2 for 1MB of RAM. DDR (double-data-rate) SDRAM is introduced.

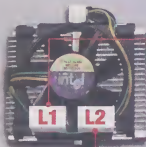
1995 The Windows 95 operating system requires 8MB to 16MB of RAM. DRAM sales top \$25 billion. Users paid \$25 to \$50 for 1MB of RAM. EDO (extended data output) DRAM is introduced.

1997 RDRAM (Rambus DRAM) for the PC is introduced. SDRAM (synchronous DRAM) is introduced.

2001 Users pay about 25 cents for 1MB of RAM, as another price crash occurs. The introduction of the Windows XP operating system will require at least 128MB of RAM.

Memory's Hierarchy

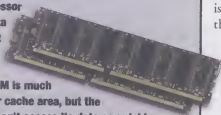
When looking for data, the CPU has a specific order in which it accesses the various types of RAM and storage areas in the computer. Here is the hierarchy of the computer's memory and storage systems.



1 The microprocessor sends its first data request to the L1 cache. The L1 cache is the fastest memory area in the computer; it contains the most frequently accessed data.

2 If the microprocessor can't find the data in the L1 cache, it moves on to the L2 cache. The L2 cache is an extremely fast memory area, too, but not quite as fast as L1. It is a larger cache area, though.

3 If the microprocessor can't find the data in either cache, it moves on to the RAM, the main memory area. RAM is much larger than either cache area, but the microprocessor can't access its data as quickly. RAM holds all currently open documents and open programs. It also holds operating system information.



4 If the microprocessor can't find the data in RAM, it must move to a more permanent storage option, the hard drive. The hard drive is extremely large and can hold a lot of data, but accessing data from it is a slow process, compared to RAM or the caches. If your hard drive contains an area of virtual memory, which behaves a little like RAM, the CPU will look in virtual memory before searching the hard drive.



of time the microprocessor must wait to receive data from RAM.

To help the microprocessor, manufacturers such as Intel and AMD add extremely fast types of RAM, called SRAM (static RAM) to the microprocessor architecture. SRAM is faster and more expensive than DRAM because it takes more transistors to save 1 bit of data than DRAM. However, SRAM's data is static, meaning the computer doesn't need to refresh it as it does with DRAM. These SRAM areas in the microprocessor architecture, called caches, hold data the microprocessor needs most of the time, greatly improving the speed with which the microprocessor can work. Because SRAM is much more expensive than DRAM, microprocessor manufacturers only use it in small areas, usually less than 1MB currently. Using SRAM in the computer's large main memory area would be too expensive for computer manufacturers. From time to time, data moves from the cache areas to RAM and vice versa, depending on the type of work the microprocessor is performing.

When trying to make data transmissions between RAM and the microprocessor faster, another problem engineers must deal with is CAS latency, which causes a drag on memory performance. CAS latency measures the number of

clock cycles that pass from the time the microprocessor issues a command before the memory area begins sending data. For high-end users and gamers who are pushing the limits of their overall system, higher CAS latency measurements can cause a noticeable drag on system performance, but most people won't notice CAS latency. Most RAM chips have a CAS latency rating of 2 or 3. A rating of 2 means there is less CAS latency than a rating of 3.

Flavors Of DRAM

Nearly every computer uses some form of DRAM in its main memory area, but the form a computer uses may vary from computer to computer. Here are the main forms of DRAM that have proved commercially viable.

FPM DRAM (fast page mode DRAM). The earliest variation of DRAM released in the late 1980s; it improved the efficiency with which the computer could access memory cells.

EDO DRAM (extended data output DRAM). One of the earliest changes to FPM DRAM, EDO DRAM led the market in the mid-1990s and let the computer retrieve a second bit of data before the first bit arrived at the microprocessor. A later variation of this was BEDO DRAM (Burst EDO DRAM), which allowed brief bursts of high-speed data transfer.

SDRAM (synchronous DRAM). SDRAM dominated the DRAM market throughout the late 1990s and through 2001, although it's beginning to give way to DDR and RDRAM. (See below.) SDRAM moves 1 bit of data in synch with the microprocessor's clock, letting it operate more efficiently. SDRAM represented a strong push forward in DRAM technology and spawned DDR.

DDR SDRAM or **DDR** (double-data-rate SDRAM). Often shortened to DDR, this type of memory is battling with RDRAM to become the standard for the next generation of DRAM. It takes the ability of SDRAM to operate quickly and efficiently by synchronizing itself with the microprocessor's clock cycle and improves on it by sending 2 bits of data per clock cycle instead of just one.

RDRAM (Rambus DRAM). RDRAM moves more data than older variations of DRAM by using a higher bus clock speed to move 2 bits of data per clock cycle. RDRAM is the main competitor of DDR.

The Memory Battle

As SDRAM's dominance in the memory market begins to wane, DDR and RDRAM

RAM, RAM Everywhere

Several areas of your computer use a form of RAM to process data.

Microprocessor

The L1 and L2 cache areas inside the microprocessor's architecture use SRAM and provide extremely fast and efficient memory capabilities. To keep costs down, though, cache areas are kept fairly small, usually less than 1MB.



Printer

Most newer printers contain an area of RAM, usually from 2MB to 8MB, called a printer buffer, which temporarily stores data waiting to be printed. The printer buffer frees the main memory area for other tasks.

Hard Drive

Newer hard drives use small areas of RAM, called caches or buffers, to store recently used data the hard drive predicts it will need soon. These buffers, usually either 512KB or 2MB in size, are connected to the hard drive controller determines which data it will store in the buffer.

Main Memory

The main memory area consists of DRAM, which must be continually refreshed with an electrical charge. You might have SDRAM, DDR, or RDRAM in your computer's main memory area.

Video Card

Most newer video cards contain anywhere from 4MB to 32MB of RAM. The RAM on the video card focuses on producing graphics, freeing the main memory for other tasks.

will continue to battle to become the next industry standard. When you consider buying your next computer, you'll probably need to weigh the differences between these three types of RAM. But first you'll need an understanding of how their performances are measured.

Before SDRAM, manufacturers measured RAM speed in nanoseconds. Manufacturers measure today's SDRAM, DDR, and RDRAM speeds in megahertz, similar to a microprocessor. Because these types of RAM synchronize themselves with the CPU's clock and clock speed measurements are in megahertz, this is a logical measurement for RAM.

DDR. Engineers have designed newer Athlon processor architectures from AMD and some Pentium 4 processor architectures from Intel to take advantage of the speed of DDR.

The measurement of how much data DDR memory can move per second is dependent on the memory bus speed and size. For example, a

bus with a 100MHz speed would have 100 million clock cycles per second. Using DDR technology, though, 2 bits of data move per bus channel per clock cycle, yielding an effective bus speed of 200MHz. If it is a 64-bit bus (with 64 channels), it can carry 1.6GB of data per second. (Multiply 200 million cycles per second by 8 bytes [equal to 64 bits] per cycle to yield 1.6 billion bytes per second.)

The PC1600 DDR memory works with a 200MHz bus and can move 1.6GBps of data. The PC2100 DDR works with a 266MHz bus and can move data at 2.1GBps. The PC2600 DDR works with a 333MHz bus and can move data at 2.6GBps. The number after the "PC" in the memory's name refers to the number of gigabytes per second the memory can move.

SDRAM. This type of memory takes its names differently from DDR, focusing on the memory bus speed for the number after the "PC" in the name. PC100 SDRAM works

with a 100MHz bus and can move data at 0.8GBps. PC133 SDRAM works with a 133MHz bus and can move data at 1.06GBps.

RDRAM. Intel initially announced its Pentium 4 microprocessor architecture would only work with RDRAM, but concerns over potentially high prices for RDRAM caused Intel to create other architectures with support for DDR and SDRAM.

You measure RDRAM data movement a little differently than DDR because the Rambus memory bus is a 16-bit bus (equal to 2 bytes). RDRAM memory buses have a speed between 300MHz and 400MHz, but because RDRAM can send 2 bits of data per bus channel per clock cycle, its memory buses have an effective speed of between 600MHz and 800MHz. RDRAM is named PC600 for an effective 600MHz bus and PC800 for an effective 800MHz bus. PC600 RDRAM can move data at

1.2GBps and PC800 RDRAM can move data at 1.6GBps.

Buying tips. If you're confused by the different names for the various types of RAM, especially when trying to compare them across RAM families, stick to comparing the amount of data each one can move per second. Ignore the PC100, PC800, or PC2100 names when comparing types of RAM between memory families. When upgrading, don't mix types of RAM from different RAM families.

Finally, remember that the measurements of data movement per second would occur only in a perfect world. Data errors, bottlenecks in other portions of the computer, and CAS latency all will lower the actual amount of data the memory can move per second.

Regardless of which memory technology becomes the newest industry standard, one thing is certain: Memory technology has come a long way.

Today's (& Tomorrow's) Memory

RAM is a key component of your computer. It might not be as important as the microprocessor, but it does affect how quickly and efficiently the microprocessor can do its job. The amount of RAM in your computer also affects exactly which software you can use.

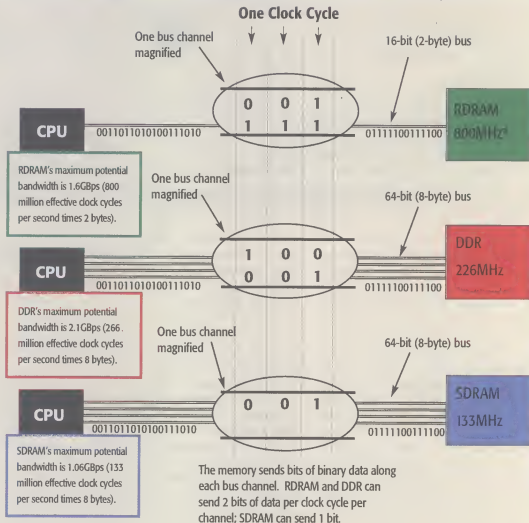
RAM amounts have grown tremendously over the years. In the earliest PCs in the late 1970s, 4KB or less of RAM was common. Late in the 1980s, about 1MB of RAM was common, a 250-fold increase over the earliest computers. Today's

Windows-based PCs usually have 128MB or 256MB of RAM.

As long as silicon is the major manufacturing component in memory modules, you can expect RAM amounts installed in personal computers to continue growing steadily. However, other technologies on the horizon could completely change the way we think of RAM and data storage. In the short term, you can expect manufacturers to continue to try to improve the speed with which data moves from RAM to the microprocessor. It could involve improving technology used in the memory bus to increase size and efficiency. You will also see microprocessor manufacturers trying to include more and more SRAM within the cache areas of the microprocessor architecture, improving overall system speed.

Herding The Data

This graphic shows the potential maximum bandwidths for the three most popular types of RAM currently available. Keep in mind the potential maximum bandwidth is available only under perfect conditions, which systems can almost never attain. RDRAM and SDRAM currently seem to have an easier time achieving bandwidths closer to their maximum than DDR, although that could change as the technology improves. While this graph applies to currently available speeds and bandwidths, Rambus has announced plans for 32-bit and 64-bit buses for RDRAM in a few years. ▲



*Megahertz measures the number of million clock cycles each type of RAM can achieve per second. Because RDRAM and DDR can send 2 bits per clock cycle, their effective clock cycle measurements are double the actual measurements.

Current RAM Upgrade Prices

Here are the average prices of RAM according to various Web vendors as of August 2001. ▲

- 256MB DDR PC2100, \$130
- 256MB DDR PC1600, \$110
- 128MB DDR PC2100, \$80
- 128MB DDR PC1600, \$70
- 256MB RDRAM PC800, \$195
- 256MB RDRAM PC600, \$180
- 128MB RDRAM PC800, \$105
- 128MB RDRAM PC600, \$95
- 64MB RDRAM PC800, \$65
- 64MB RDRAM PC600, \$55
- 256MB SDRAM PC133, \$60
- 256MB SDRAM PC100, \$45
- 128MB SDRAM PC133, \$35
- 128MB SDRAM PC100, \$25
- 64MB SDRAM PC133, \$25
- 64MB SDRAM PC100, \$15

Magnetic RAM. It could also involve creating a type of RAM that doesn't need electronic refreshing as often or that would be static, which would improve the overall speed of the computer. IBM has partnered with Infineon to develop a new type of RAM that could be available in a few years called MRAM or MagRAM (magnetic RAM). MRAM could replace both ROM and DRAM, possibly letting your computer to skip the boot process and power up as quickly as a radio or a television.

MRAM is different from DRAM because it uses magnetism to store data instead of electronic charges. MRAM is static, so it holds its data even when the computer has no power. It works faster and more efficiently and requires less power than DRAM. With MRAM, electrical charges only change the polarity of the memory cells from 0 to 1 and from 1 to 0. The electrical current doesn't come in contact with the magnetic memory cell, but it comes close enough to change the cell's polarity.

Because the need to continually refresh the electrical charge in DRAM greatly slows its performance, MRAM would be able to feed the microprocessor data more quickly. Because of its low-power consumption, MRAM would

be ideal for handheld devices or notebook computers, too. Other companies are trying to build similar solutions, but the ability to build affordable and large memory components using MRAM, that are comparable in price to DRAM, is still at least a few years away.

In the long term, technologies such as organic computers, quantum computers, and printable computers, while still decades away, could change RAM or eliminate the need for RAM as we know it. Future types of computing technologies may not need a temporary storage area such as RAM because they'll be able to access more permanent storage areas just as quickly as a temporary storage area.

Enjoy Better Memory Today

While you're waiting for these advances, you might as well take advantage of today's improvements in memory technology. Memory prices have never been lower, and memory technology has never moved data more quickly. It might be time for a memory upgrade. Your computer system, and the software it runs, will thank you. [B]

by Kyle Schurman

Terms To Know

access time—The amount of time in nanoseconds it takes the RAM to access data.

backside bus—The bus that connects the CPU and the L2 cache memory area.

binary data—Data represented by a series of 1s and 0s (base-two). Computers store data in binary.

bit—The smallest amount of information a computer processes; a single binary 1 or 0.

bus—A path in the computer used to move data between components. There are several buses in a computer, and they connect different components at different clock speeds.

byte—Equal to 8 bits.

cache memory—A small, high-performance memory area located inside the microprocessor architecture.

CAS latency—The measurement of the lag time between when the microprocessor makes a data request of the RAM and the time when the RAM fulfills the data request.

DRAM (dynamic RAM)—The most common form of RAM used in computers; the computer must continually refresh it with an electrical charge to hold its data.

GB (gigabyte)—A measurement equal to 1 billion bytes. Future amounts of RAM will be measured in GB.

KB (kilobyte)—A measurement equal to 1,000 bytes. Early amounts of RAM were measured in KB.

L1 (level 1) cache—The fastest, and usually smallest, cache area on the microprocessor; also called primary cache.

L2 (level 2) cache—A slightly slower and larger cache area on the microprocessor, when

compared to L1 cache. L2 cache is still much faster and more efficient than RAM.

MB (megabyte)—A measurement equal to 1 million bytes. Current amounts of RAM are usually measured in MB.

memory—A term used interchangeably with RAM.

MRAM (magnetic RAM)—A form of RAM still in development that would hold its data without the presence of electricity. MRAM is based on polarity rather than electrical charge.

RAM (random-access memory)—A set of memory cells the microprocessor can access in any order. RAM holds often-accessed data for the microprocessor.

SRAM (static RAM)—A type of memory chip, usually used in caches, that doesn't require refreshing of its electronic charge to hold data.

Web Hosts

What You Should Know When Searching For A Free Host



As technology progresses, so too do our methods of communication. Back in the "olden days," information logistics were not only more time-consuming than they are today, but also more costly. Since the introduction of the Internet, we've quickly seen a change in the ways in which information is transferred and received, not to mention a change in the cost-efficiency.

The most popular means of distributing information nowadays is via the Internet—more specifically, using Web sites. We've all seen them, most of us have surfed them, and many of us own them. Comparatively speaking, a Web presence is a much more advanced method of creating awareness than, say, the old-fashioned Yellow Pages listing, direct mail, or telemarketing tactics. (Of course, these methods are now being used online, as well.) The question posed by Internet newcomers, however, is "How and where do I begin?"

First and foremost, the soon-to-be Webmaster must determine his needs. Seems like a simple concept, really, but when you begin your search for the perfect Web host, you'll likely think otherwise. Thousands of companies offer free services on the Web today. Attempting to sift through them all and

decide which is right for you can be mind-boggling. The type of host you choose is dependent on two options—business or pleasure.

Which Is Which?

While many online companies may charge several hundred dollars to host your Web site, there are many companies offering free web-hosting services. This creates two new questions: "How do the free Web hosts make any money?" and "Why would I pay full price if I can get it for free?"

As a general rule, we follow the advice of the old saying, "You get what you pay for." This is not to say that all free Web hosts are of low quality, and it is not to say that all costly Web hosts are of high quality. The advantage of paying full price for a Web service provider or host is that you are guaranteed a domain name, such as www.yourname.com. And oftentimes you will receive free technical support, bulk-purchasing discounts, your own personal sales representative, Web site traffic reports and search-engine submission. This option is for the more experienced Webmaster who has limited spare time and deeper pockets.

For the rest of us, free Web space is abundantly available, but with slight drawbacks, of course. Nothing, after all, is *actually* free. By offering free Web space, these hosts are either predicting you will upgrade to their more expensive packages, thus turning a profit, or their mission is to drive traffic to their own home page. Why? Because this type of company probably earns a living from advertising dollars and the more visitors (which is also known as hits) a Web page receives, the higher the advertising rates. Another trade-off is that you may be forced to place banner advertisements on your home page on your host's

behalf. Surely you've seen them, those rectangular boxes at the top or bottom of your screen, blinking and flashing with all the bells and whistles.

As mentioned earlier, when using a free Web host you won't necessarily receive a personalized World Wide Web domain name. For example: If you choose Netscape, your URL may look something like this: <http://www.netscape.net/yourname>, which is called a subdomain. Not a bad alternative for the more entertainment-bound Web site owners.

Also for such site owners, many hosts require you to select some areas of interest, an approach designed to get you involved with their community of users who share similar interests, by offering chat rooms, message boards, clubs, and newsletters. The advantage is these companies will often offer free e-mail accounts, such as yourname@netscape.com, for example. The disadvantage is many of these companies offer limited Web space (about 5MB), which may be acceptable for simple text, but if you're planning to design a photo gallery, for instance, you had better continue on in your search for at least 15MB or more.

Conversely, Webmasters seeking a more business-professional Web presence should search for less banner advertising, more Web space and, most certainly, free e-mail services. The advantage is you are usually provided with Web-building tools and assistance, such as FTP (File Transfer Protocol), images and fonts, and more Web storage space, not to mention unlimited e-mail accounts. The disadvantage is, once again, you may be given a subdomain.

Precautions

Privacy and security are major priorities in today's cyber world. Hackers are a dime a dozen and credit card fraud has never been so easy. Your first priority should be to select a host that guarantees Web security and privacy of your information. Always give pause before offering personal information. For instance, if the service is free, why might they ask for your credit card number? Or, if this company does not employ you, why give them your social security number? Also, do they *really* need your home telephone number? Probably not. Just because companies request personal information does not mean you are required to provide it. Read the privacy policy for each Web host in which you are interested. In these privacy policies you will learn such things as

where your information will be collected, who will have access to it, with whom it will be shared, and what type of procedures are in place to protect the misuse or alteration of your information.

To provide you with a clear idea of your Web-hosting options, listed below are some varying types of free Web host providers, for both business and pleasure.

0Catch

This advertiser-sponsored company offers 100MB free space (or 250MB of space with the Pro Accounts), FTP support, FrontPage extensions, free site promotion, site statistics, and more. Claiming to have fast, reliable servers, 0Catch requires you to display its banner ads on your Web site. But, it also offers Pro Accounts for \$6.95 per month, which lets you use its hosting services banner-free.

For privacy reasons, 0Catch claims to only retrieve the IP (Internet Protocol) address rather than the e-mail address of site visitors. However, because this is an advertiser-sponsored site, by visiting 0Catch, related ad-server companies may capture your domain type, IP address, and clickstream information to later send you information. They will not contact your site visitors, though.

<http://www.0-catch.com>

Doteasy

Doteasy provides \$0 Web-hosting and e-mail solutions without banner ads. This company offers premier hosting on high-powered Linux and Windows NT systems running Microsoft IIS and ApacheWeb servers. With fast servers, fast data connections and bannerless service, this is an ideal option for the business-professional Web site owner. Sponsors who place ads in Doteasy's daily newsletter, which its members must agree to receive, make this service possible. This host provides "yourname" domain hosting, 20MB of Web space, unlimited FTP access, POP (Post Office Protocol) and Web-based e-mail accounts, autoresponders and e-mail forwarding features. Doteasy's purpose in collecting personal information is to identify the member, as well as to send recent updates and important announcements via post and/or e-mail. This data is compiled, analyzed, and used only by Doteasy. No part of the information you provide is sold, disclosed, or made accessible by third parties or by the public.

<http://www.doteasy.com>

Tripod

Owned by Lycos of Boston, Mass., this Web host offers 50MB of Web space, CGI (Common Gateway Interface) scripts and JavaScripts, site-building tools, Lycos VideoCenter, and streaming media. Tripod's site-building tools, powered by Trellix, let users add photos, counters, guest books, maps, and weather reports, to name a few. The VideoCenter and streaming media let users create digital videos or slideshows using RealSlideShow 2.0.

Also available is the option to become a merchant affiliate. By adding links to your Web site for Tripod's merchant partners, you are eligible for a percentage of the profits. When you register for a service within the Lycos Network, your personal information is collected and maintained solely by the Lycos Network unless specifically stated otherwise at the point of collection. By providing your identifiable information, you authorize Lycos to internally share that information with other companies in the Terra Lycos group, which can be viewed at <http://www.terra.com/info-en/group.htm>.

<http://www.tripod.lycos.com>

Webhostme.com

This trademark of Digitware, LLC has plenty of freebies such as FrontPage support, Active Server Page (ASP) support, MS-Access (Database) support and your own domain name (no long string of slashes and codes that can accompany subdomains). Webhostme.com also offers 20MB of storage space, Web-based e-mail, instant account activation (within 10 minutes), unlimited Web site traffic/hits, and unlimited updates.

The ad banner that is spawned when your page is opened sponsors this free program. The goal is to provide a free hosting service for all users who need it; however, advertisement income is the method of choice to support and enhance this free service for the Internet community.

For \$20 per month (and a \$25 setup fee), Webhostme.com's affiliate, Webmage (<http://www.webmage.com>), offers ad-free hosting. Webmage's Basic package offers 100MB of Web space, top-eight search engine submission, up to 10 e-mail accounts, ASP, FTP and 24/7 e-mail/Web support. The company also provides Standard and Additional services. Beware: upon review of this site, we were

Our Favorites

0Catch

<http://www.0-catch.com>

Doteasy

<http://www.doteasy.com>

Tripod

<http://www.tripod.lycos.com>

Webhostme.com

<http://www.webhostme.com>

Yahoo! GeoCities.com

<http://geocities.yahoo.com>

unable to locate a privacy policy. If such a policy is in place, it is very well hidden.

<http://www.webhostme.com>

Yahoo! GeoCities

Yahoo! GeoCities is considered one of the most popular Web service providers, offering a very large community consisting of chat rooms and message boards. With 15MB of storage space, the Yahoo!PageWizards help design the ultimate page for your site, whether it's business or pleasure. Yahoo!PageBuilder acts as your HTML writer, helping you add pictures, sounds and graphics to your pages.

GeoCities uses banner advertising methods; however, it offers a variety of add-ons as a compromise, such as site statistics, counters, guestbooks, stock quotes, Webcam, weather, and maps. When you register with Yahoo!, you must submit your name, e-mail address, birth date, gender, ZIP code, occupation, industry, and personal interests.

Once you register with Yahoo! and sign in to its services, you are not anonymous. Yahoo! automatically receives and records information from your browser including your IP address, Yahoo! cookie information and the page you requested, using this information for three general purposes: to customize the advertising and content you see, to fulfill your requests for certain products and services, and to contact you about specials and new products.

<http://geocities.yahoo.com>

by Aimee Beck

Desktop Publishing

1

Maybe your company is rolling out a new ad campaign, and the boss wants everyone to work up some full-color ideas. There's a raise in it for the person who produces the winning presentation. Or perhaps you want to wow family and friends and save a little money at the same time by creating your own holiday cards this year. You'll want a desktop publishing program that is powerful enough to get the job done right but easy enough to use so you won't spend hours fiddling with the controls.

In this section, we cover the ins and outs of desktop publishing, including where DTP originated; the types of projects that are perfect for DTP, including a newsletter, flyer, invitation, brochure, business card, and banner; and the programs, both big and small, that will help you accomplish your publishing tasks. We'll also take a detailed look at three of the top DTP programs: Adobe PageMaker 7.0, Adobe InDesign 1.5, and QuarkXPress 4.1. Even if you already use one of these programs, you'll find valuable information about plug-ins to enhance your program's capabilities and projects that will increase your productivity. And the troubleshooting tips will help both new and experienced users out of a jam. Finally, you'll find a list of useful DTP Web resources. If you're serious about desktop publishing, you won't want to miss this section.

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A Whole New World Awaits

61 Behind The DTP Jargon

Talk The Lingo

64 Adobe PageMaker 7.0

A Long-Awaited Update To The Definitive Desktop Publishing Program

67 Plug-ins: PageMaker

These Little Gtms Give You Endless Publishing Possibilities

71 Projects: PageMaker

Learn How Easy It Is To Make It Yourself

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Get To The Root Of Your Problems So You Can Get Back To Work

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A Serious Contender Edges Closer To Its Full Potential

80 Plug-ins: InDesign

Programs That Let You Do More

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Tools To Help Unlock Your Creativity

86 Troubleshooting: InDesign

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88 QuarkXPress 4.1

The Reigning Champ Works On A Sequel

91 Plug-ins: QuarkXPress

Discover Ways To Put This Program In The Express Lane

94 Projects: QuarkXPress

Get To Work With Ease

98 Troubleshooting: QuarkXPress

Tips To Help Work Out The Kinks

SPECIMEN
CHARACTERVM
PORVM PROBATISSIM
INCONDITE QVIDEM SED S
DV M SVAS TAMEN DIFFERENTIAS
POITVM TAM ILLIS LIBROVM ATTORIBV
SIO-PTIBVS OPTIME VIBVS
DE CIBVS

Introduction To Desktop Publishing

A Whole New World Awaits

It used to be that designing and printing even simple documents, such as newsletters, invitations, or flyers, was a major undertaking that most likely involved a typewriter, scissors, glue (for pasting in graphics), and a photocopier. The creation of more complex documents (magazines or snazzy marketing materials) was even more difficult and required the services of professional typesetters and printers. This was time-consuming and expensive because several people needed to be involved with moving the project from design to layout and finally to printing.

That all changed in the mid-1980s with the advent of desktop publishing. Desktop publishing, or DTP, is the process of using a computer to combine text and graphics into professional-quality printed documents. It revolutionized the printing industry by giving anyone with an idea they wished to communicate in print the tools to do so cheaply and efficiently.

Software Is The Key

Desktop publishing software gives you precise control over the way elements are arranged on a page, ranging from the spacing between letters to the way text flows around a graphic. Most programs also include basic drawing packages for creating simple line art. Word processing functions give you fine typographic control, which lets you select multiple typefaces, font sizes, and effects.

This brings us to the question: what differentiates desktop publishing from word processing? After all, most word processing programs will insert graphics and do multiple column layouts. Is it really necessary to learn a completely separate desktop publishing package when you can accomplish the same results with a tool you already know and love?

The line between word processing and desktop publishing software has blurred in recent years. Programs like Microsoft Word and WordPerfect now include basic desktop publishing functionality, such as drawing and textbox tools, which will create simple layouts.

The decision of whether to use a word processor or desktop publishing software really comes down to a question of what kind of documents you want to create. If your projects are text-intensive with relatively standard layouts and limited graphics, such as newsletters, informational flyers, and business cards, you'll probably do just fine with a word processor. For anything that requires more complex graphic design (marketing materials, magazines, or advertisements) or long documents that require a great deal of

special formatting (manuals or textbooks), it's worth the effort and expense to invest in a dedicated desktop publishing package.

While desktop publishing can make many projects easier, it's not appropriate for all document types. In order to select the best tool for your job, you need to recognize the differences between the two application types. Here are some examples:

Departmental newsletter. This is a perfect project for desktop publishing because it combines text and graphics and requires control over layout and typography. DTP software makes it a snap to wrap text around a graphic or add a caption to a photo. The final result can be as utilitarian or as fancy as desired.

Resume. While laying out a resume in a DTP program might help with some of the



precise formatting, word processing programs often have templates to help with this task. It's also much easier to share word processor files electronically, as more people have ready access to the software.

Web page. Some programs do allow for the conversion of DTP documents to Web pages, which is a handy way to repurpose printed material. But such conversions often don't reproduce the layout exactly right, and links and other Web-specific information has to be added by hand. If the intent is to build a Web site, it's better to use a Web editor such as FrontPage or Dreamweaver.

Users manual. This is another great project for desktop publishing. Text from a proofed manuscript, screen captures, and illustrations can be imported and placed onto templates to maintain a consistent look throughout the manual. When completed, the files can go right to the printing house.

In short, while you can use either type of program to create simple documents, you'll generally find it easier to achieve a desired look with desktop publishing software. And the more complex the document, the more necessary specialized software becomes.

The Process

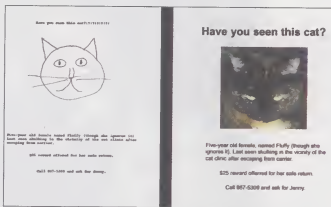
Whatever software you choose, creating a document in a desktop publishing program is a multi-step process that starts with importing the content you want to appear on the page or pages. This content includes any text, line art, or photos you've created in a word-processing, drawing, or image manipulation program.

Next comes the actual laying out of the page. DTP treats every piece of art or block of text as a separate element that can be moved around, resized, or otherwise manipulated. When a new document is created, there is literally a blank screen on which images and text can be arranged. And just as importantly, all of these elements can be rearranged an infinite number of times until everything is perfect before ever committing anything to paper.

Once you see the perfect page design reflected on your computer screen, it's time to print. Depending on your needs, you have a couple of options. Inkjet printers are a great

way to get full-color prints at a remarkably affordable price. A good inkjet printer can produce black-and-white results that approach the quality of laser printers. Laser printers are a bit more expensive, but they produce a finished product that is crisp and clear and looks truly professional. For longer projects, you'll also want the extra speed inherent in laser printers without sacrificing output quality.

If the whole process seems old hat, that's a testament to just how pervasive desktop publishing has become in our everyday world. It's hard to believe there was a time when none of this was possible.



The same document produced with desktop publishing tools (right) and without (left). Which would you choose if your cat's life depended on it?

DTP Then . . .

Modern desktop publishing became a reality thanks to three closely-timed inventions: a computer which used a graphical interface, software which took advantage of the ability to manipulate text and graphics on-screen, and a printer that was capable of producing professional-quality output at a relatively affordable price.

In 1984, a small company introduced a computer that was unlike any that had come before it. Instead of requiring a user to type commands using a keyboard (which was intimidating to all but the most technologically savvy), it provided a graphical interface and a mouse which let users move a pointer around the screen and click the items they wanted to access. The company was Apple, and the computer was the Macintosh (Mac for short).

The Mac's GUI (graphical user interface) made it possible for users to manipulate text and graphics on the screen and to see these elements displayed as they would look when printed. One such program, published in

1985 by the Aldus Corporation, was called PageMaker. That first version of PageMaker has become legendary not only as ground zero for the desktop publishing revolution (in fact, Paul Brainerd of Aldus Software is credited with inventing the term), but also as the application that saved the Macintosh from extinction. Before PageMaker, there wasn't much in the way of software for the Macintosh, and therefore no big rush to buy one. After PageMaker, design and publishing professionals flocked to the platform, creating a solid base of loyalists that have carried the Mac through some rough times.

Equally important to the genesis of desktop publishing was another Apple creation: the LaserWriter. Also released in 1985, this was the first affordable printer that could produce professional-quality documents. Apple's LaserWriter used a technology called PostScript (created by Adobe), a page description language that allowed the printer to reproduce text and graphics exactly as laid out in the software. Designers could at last be certain that what they saw on-screen was what would print on paper. And with these three elements in place (computer, software, and printer), desktop publishing was born.

In the years that have followed, several pieces of software were introduced that improved the state of desktop publishing. Adobe released Photoshop, an image-editing program, and Illustrator, a drawing program, both of which made it easier to create complex and interesting graphics that could be imported into documents. More desktop publishing programs were introduced, the most notable of which, QuarkXPress, is now the industry leader with more than two million customers, according Glen Turpin, Quark's public relations manager.

. . . And Now

Desktop publishing has exploded in popularity over the last 16 years. Publishers, designers, and graphic artists were originally its primary users. Today, however, office administrators, teachers, and Little League coaches use DTP regularly. Projects range from textbooks, magazines, and full-on glossy ad campaigns to office newsletters, class

syllabi, and hot dog cart menus. The phrase "desktop publishing revolution" is certainly an apt one to describe this democratization of the ability for creative printed expression.

One development that has had a remarkable ripple effect on desktop publishing is the rise of networking and the Internet. The ability to share documents electronically and maintain electronic archives is becoming more important with each passing year. Where it was once enough for a DTP program to produce professional-quality print materials, it's now also expected to output professional-quality electronic documents, either via Adobe's PDF (Portable Document Format) technology or as a Web page.

The Hardware

Because of the head start it got by being in the right place at the right time, the Macintosh remains the platform of choice in many of the industries where desktop publishing is core to the business's operation; good examples are book and magazine publishing, graphic design, and advertising. Since the introduction of Windows, the operating system that replaced DOS, the PC has made considerable headway into the desktop publishing realm.

Software packages that were originally only available for the Mac now exist for both platforms; there are even a number of DTP programs that are PC-only, aimed mostly at the corporate market where PCs dominate by a wide margin. As time passes, the choice of whether to use a Mac or PC for desktop publishing will likely become more a matter of

personal or corporate preference and familiarity than of professional necessity.

The Software

The number of DTP software titles on the market has grown substantially, and most of the programs have features that early users never dreamed possible. The major players today are Adobe, which merged with Aldus and took over the PageMaker program, and Quark, publisher of XPress and reigning DTP king.

Choosing the right software package for your desktop publishing needs depends on what kinds of tasks you want to accomplish. Just as you would never try to dig a hole with a spoon or eat soup with a shovel, you wouldn't want to use a program best suited for creating business cards to lay out a coffee table book on impressionist painters.

High-End/Professional

These programs are most often used by publishing houses and design professionals. While they can certainly be used to create simple brochures and flyers, they're better suited to projects ranging from graphically loaded magazines and textbooks to content-intensive technical documentation.

QuarkXPress 4.1. According to a survey in the October 2000 issue of *Folio* magazine, QuarkXPress controls approximately 89.4% of the professional DTP market. Though it came onto the scene a few years after PageMaker, XPress quickly surpassed it in popularity with advanced features like a frame-based approach to page design

(which makes for easier flowing of text and the ability to create templates). Additionally, XPress makes phenomenal use of plug-ins, called XTensions, to expand its functionality; there are more than 450 XTensions available.

If there's a chink in XPress's armor, it has been the lack of built-in support for reliable Web-based and electronic publishing solutions. Exporting to HTML and PDF formats is accomplished through XTensions, and neither process is particularly robust. Quark has attempted to address this issue; Quark Xtension and Quark 5.0 (due for release later this year or early 2002) will integrate both avenue. Quark and PDF technology.

Adobe InDesign 1.5. Adobe introduced InDesign as a direct competitor to leader QuarkXPress in an attempt to win back the professional publishing customer base needing higher-powered features than PageMaker could provide. InDesign has built in the ability to use XPress keystroke shortcuts to make it easier for users to switch over.

While the first releases of InDesign have been promising, many users might wait until the program matures in future releases before jumping the XPress ship. Perhaps InDesign's greatest enticement is its membership in the Adobe family, allowing for more seamless integration with the industry-standard graphics applications like Photoshop and Illustrator. The potential is there, but only time will tell whether InDesign lives up to its hype as the "Quark killer."

Corel Ventura 8. In the Mac-dominated world of professional publishing, Ventura was one of the first PC software packages available. While it has never come close to approaching the popularity of the Quark and Adobe products (certainly in part because of the lack of a Macintosh version), Ventura retains a solid place in long document publishing. One of Ventura's greatest strengths is its use of tags to apply formatting attributes to elements within a project. These same tags are used to repurpose files for the Web with great success (an area in which other DTP programs have stumbled).

Adobe FrameMaker 6. FrameMaker is Adobe's solution for publishing long, text-intensive materials, such as manuals and training documents. Used most frequently by technical documentation specialists, one of the program's major strengths is its ability to easily create electronic and Web

Desktop Publishing Top 10

Here we see the retail top 10 by Units (Macintosh Only) for year-to-date 2001 (January 2001 to June 2001).

Rank	Title	Publisher	Total Units	Total Dollars
1	QuarkXPress 4.1	Quark	15,529	\$ 11,881,621
2	Adobe Design Collection 3.0	Adobe	2,660	\$ 2,130,990
3	Adobe Publishing Collection	Adobe	2,380	\$ 2,325,328
4	Adobe InDesign 1.5 Upgr	Adobe	1,804	\$ 346,470
5	Adobe PageMaker Plus 6.5 Upgr	Adobe	1,594	\$ 140,228
6	FlightCheck 3.5	Markzware	1,578	\$ 501,271
7	Adobe PageMaker Plus 6.5 TLP Lic Acad	Adobe	1,464	\$ 192,220
8	Adobe PageMaker Plus 6.5	Adobe	1,260	\$ 599,477
9	Adobe PageMaker Plus 6.5 Acad	Adobe	1,259	\$ 329,926
10	Adobe InDesign 1.5 TLP Lic Acad	Adobe	970	\$ 125,561

SOURCE: NPD INTELLECT MARKET TRACKING

versions of documents so they can be easily shared over a variety of media. FrameMaker also provides excellent book-wide management features.

Such power doesn't come cheaply. At \$800 it's the most expensive of Adobe's DTP software line. For those who need the advanced features, though, little out there can compete.

Business/Educational/Home

Corporate, home business, and educational users have very different needs than professional publishers. Documents, such as brochures, flyers, posters, and business cards, are more easily created with software that has a faster learning curve and some built-in templates for novice users.

Adobe PageMaker 6.5 Plus. PageMaker's glory days as the professional DTP industry leader are long past. The software program that started the desktop publishing revolution and saved the Macintosh has seen a steady decline in use by professional publishers. Programs, such as XPress and Ventura, have stepped up with more advanced and easier-to-automate layout capabilities. Still, with a core of loyal users and its place in the Adobe family (making for easy integration with other Adobe apps), PageMaker remains a viable and much-revered product.

With the release of InDesign, there was some speculation that PageMaker's days were numbered. Instead, with the newly released version 7.0, Adobe has repositioned PageMaker in the business and educational market with features, such as the ability to create tagged PDF files (which allows PDFs to be displayed properly on laptops, PDAs [personal digital assistants], and other wireless devices), and enhanced support for importing Microsoft Word files and converting Microsoft Publisher and Quark XPress files.

Microsoft Publisher 2002. Available separately or bundled with Microsoft's new Office XP, Publisher 2002 is aimed at those users who want to create business documents within the familiar Office framework. The program includes thousands of customizable templates for everything from marketing

materials to newsletters and more, as well as numerous wizards that can walk a novice through a project from start to finish.

Publisher also has built-in support for converting documents to Web pages, though Microsoft suggests limiting the Web site size to no more than 10 documents. And, if you're a Mac user, you're out of luck; Publisher only works on Windows platforms.

Serif PagePlus 7. As with Microsoft Publisher, Serif is a PC-only DTP program aimed at the corporate/small-business user. It is known as being one of the easiest desktop

become the industry standard for sharing electronic documents. PDFs retain the look of a page as it was created, displaying the images and fonts that were selected by the designer, as if an electronic snapshot were taken of the document.

Users can modify PDFs by adding hyperlinks, indexing documents so they're searchable, creating thumbnails of pages, and much more. The freely available Reader, which lets anyone view and print PDFs, rounds out this extremely valuable technology.

avenue.quark. avenue.quark is not a stand-alone program. Rather, it is a

QuarkXPress XTension (an add-on to XPress that expands the program's functionality). It addresses one of Quark's weaknesses, which is its poor ability to translate documents to a Web-based format.

Avenue.quark uses XML (eXtensible Markup Language), a "next-generation" form of HTML that lets users define their own tags and make the conversion from a standard Quark file to a Web-ready document. While it's not a perfect solution—images, for example, have to be placed by hand in the resulting files—it goes a long way toward producing consistently good document conversions. And good

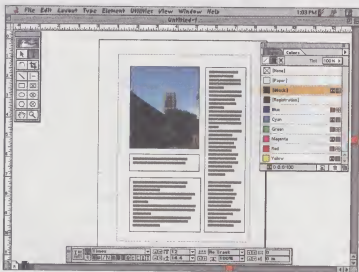
news for Quark users: avenue.Quark technology will be a part of XPress version 5.0, to be released later this year.

The Future of DTP

There is little doubt that the number of people who use desktop publishing will continue to grow. The option of producing documents in-house becomes more and more appealing, especially as corporate budgets tighten and the software evolves to provide greater control and layout possibilities.

Perhaps more importantly, electronic and cross-media publishing, already a priority, is likely to become even more critical as our reliance on the Internet grows. This ability to share information, without the costs associated with printing, has been a revolution unto itself. [E]

by William Van Winkle



Adobe FrameMaker provides power for publishing text-intensive technical documents in both print and easily shareable electronic formats.

publishing packages to learn while still providing professional-looking results.

The newly released version 7 adds some features that enhance its usability even further: a QuickShapes tool for adding customizable pre-defined shapes, enhanced support for repurposing documents for the Web, and advanced printing capabilities that give users more control over their output.

Electronic Publishing Utilities

Most of the programs mentioned above have some level of built-in capacity for creating electronic versions of documents. Beyond those, some other utilities bear separate mention.

Adobe Acrobat 5. Acrobat is the program that converts documents created in desktop publishing and word processing programs into electronic files called PDFs. Since its introduction in 1993, Adobe's PDF has

Behind The DTP Jargon

Talk The Lingo

Like all facets of computing, DTP (desktop publishing) is fraught with its fair share of acronyms and jargon. To the novice user, this alphabet soup can pose a serious obstacle to learning, and even more experienced users may miss key concepts by glossing over an unfamiliar phrase. Rather than get lost in the lingo shuffle, use our guide to DTP's key terms, and make sure you stay in line with the design world.

Essential Terms

anchor—The process of fixing a graphical object's position relative to another object. For example, you may want to anchor a small graph just to the left of the paragraph describing it. The anchoring ensures that your elements stay properly conjoined as you modify or repaginate the document.

artwork—The original file or printout from which reproductions are made.

boilerplate—Similar to a template, a boilerplate is a predefined document containing text and/or graphics that you plan on using repeatedly. Your office might have a boilerplate for its letterhead containing everything from the company logo to address information along the bottom edge, to a standard concluding paragraph. The difference between a template and a boilerplate is that templates merely hold layout and style information, whereas boilerplates do this plus text and/or graphical elements.

CMYK (Cyan Magenta Yellow Black)—These are the four inks used in process



printing, also called four-color printing. No amount of all four colors yields white while 100% of each yields black.

collating—When handling a multi-page document, the designer must arrange, or collate, the document into the proper order for final binding.

crop marks—With standard offset printing, the paper that gets fed through a printing press is larger than the final document and must be trimmed to size. Crop marks (also called trim lines) are L-shaped and appear at each corner of the page, telling the printer exactly where to cut the printed paper and should be offset at least 1/16 of an inch from the page's edge.

dithering—Many output methods create images as a collection of dots. In black and white printing, densely packed black dots

look black, whereas loosely packed black dots look gray. Dithering is a process used when insufficient colors are available to accurately render an image. An extra dot is inserted between two existing dots. The two dots' colors are averaged and applied to the new middle dot. While not adding to the level of detail, dithering does help produce more natural-looking color gradations.

dpi (dots per inch)—A printer's dpi, or dots per inch, specifies its maximum dot density. A file may also be constructed in a certain dpi. There's no point in ballooning a file's size by designing it in 600dpi if your printer and/or print medium can't display beyond 200 to 300dpi.

em/en—A measurement within a type size equal to the width of the letters m or n. (An en space is half the width of an em space.) Proper typesetting also involves the use of em or en dashes, which are often erroneously signified with one or two hyphens.

font—A complete character set done in a single typeface, or style. Most professionals working with digital files use PostScript fonts (also called Type 1) for their accuracy over the TrueType fonts native to Windows.

halftone—A continuous tone photograph scanned and converted into dots or pixels. Photographing the original image through a screen can also do this conversion. Attempting to scan a halftone usually results in heinous moiré patterns that destroy an image's appeal.

header/footer—Repeated information that appears outside of the regular text area at the top or bottom of pages within a document. This might be anything from a page number to contact information. Headers and footers will have different type specifications than the standard document text.

justified—Very common in books, magazines, and newspapers, justified text uses word spacing and hyphenation to make all text lines in a column or page rest flush against the left and right margins. Justified type looks much cleaner on a page but is slightly harder to read than non-justified text.

kerning—The horizontal distance between two characters.

landscape—A horizontal alignment, as when you design a letter-sized document to be 8.5 inches tall and 11 inches wide (8 x 11). The opposite is the traditional portrait orientation.

leading—The distance between two lines of type. The word originates from the time when strips of lead were used to separate lines of text on printing plates.

ligature—Two letters written as a single character, such as æ and æ.

line art—Any image formed by lines rather than dots.

lpi (lines per inch)—This refers to the fineness of the screen used in the output device, although the exact lpi you designate will also be determined by the type of paper and images you use. The lowest media quality is generally with newspaper photos, which are screened at about 85lpi. Glossy magazine images can double this amount.

orphan/widow—An orphan is the first line of text in a paragraph that ends up by itself at the bottom of a column or page. The opposite of an orphan is a widow, the last line of text in a paragraph that gets stranded at the top of a page or column. Both orphans and widows are considered unsightly typesetting gaffes.

pica/point—One-sixth of an inch. One pica equals 12 points, so 72-point type generates characters that are one inch tall.

PostScript—An object-oriented page description language designed by Adobe Systems. PostScript states specifically how and where information is to be printed on a page so there is no mistranslation between computer and output device.

RGB (Red Green Blue)—This is the additive color model, the opposite in some respects of CMYK. Zero percent of each color yields black while 100% of each color yields white.

serif—The decorative ending strokes on characters. Sans serif fonts lack these strokes. Generally, serif fonts like Times

New Roman are considered preferable in traditional print media.

typeface—A set of letters, numbers, and symbols that are unified by consistent visual properties. These properties are so distinctive that they remain recognizable even after being modified in the design process.

x-height—The height of a lowercase letter excluding ascenders or descenders. (An x typifies this height. The letters g, j, p, q, and y all have descenders.)

For The More Experienced

black point—A point within an image selected to define absolute black. This helps assure color accuracy on an output device and can also be used in image editing to fine tune color breadth. The opposite, of course, is the white point.

bleed—When an image or tint needs to be printed to the absolute edge of a page, the desktop publisher must let these elements extend beyond the page's edge in the file by at least 1/8 of an inch. This allows for shifting during printing and cutting. The tint or image itself is called a bleed. When the image runs beyond all four sides of the page it is called a full bleed.

camera-ready—Traditionally, the final proof of a document is delivered to the printer for photographic shooting and subsequent conversion into printing plates. (This may entail being color separated.) Now, however, an increasing amount of printing is done directly from the original desktop publishing file. Printers are able to create plates directly from the file rather than requiring photography.

contract proof—The test proof a printer submits for final approval to a client before

running a print job. The contract proof should look identical to the finished job.

duotone—An image that is printed in two colors, generally black and one vibrant color. Without the color, the image would be grayscale.

gamut—Among the infinite number of colors, every device is only capable of displaying a certain range or number of these shades. The total range of colors for a certain device or process is its gamut. When printing with inkjets, photo paper has a larger gamut than plain paper. RGB has a larger total gamut than CMYK, although CMYK extends better into certain tones than RGB.

gripper margin—The non-printable edge of a sheet that gets handled by the rollers of a printer or copier. While most grippers don't extend into a page more than 3/8 of an inch, you may want to leave a half-inch just to be safe.

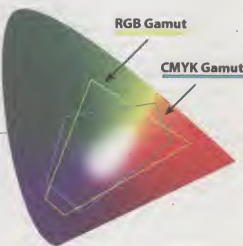
gutter—The inside margin toward a page's binding. When dealing with a multiple-image sheet, a gutter is also the area between two crop marks when cutting to a bleed.

lossy/lossless—When images are saved, they can be stored in either compressed or uncompressed formats. Compression entails discarding data from the image, information that is then "lost." Lossy formats like JPEG entail losing data. Lossless formats like TIFF do not, but you're also faced with keeping the image at its full, sometimes ponderous, file size.

registration—The specific positioning of two or more colors on a sheet aligned within the size of a printable dot.

separations—Many printing processes require images and documents to be printed in four-color separations, where the image is printed in four versions, each of which expresses the cyan, magenta, yellow, or black aspects of the image. The document is then printed with four plates, one for each color.

trapping—When an image has two colors that are supposed to perfectly touch, imperfect registration may have the colors either overlap or spaced so far apart that the paper or layer underneath them is visible. By intentionally overlapping, or trapping, colors by a half-point or less, you can eliminate registration errors that might result in color gaps. [68]



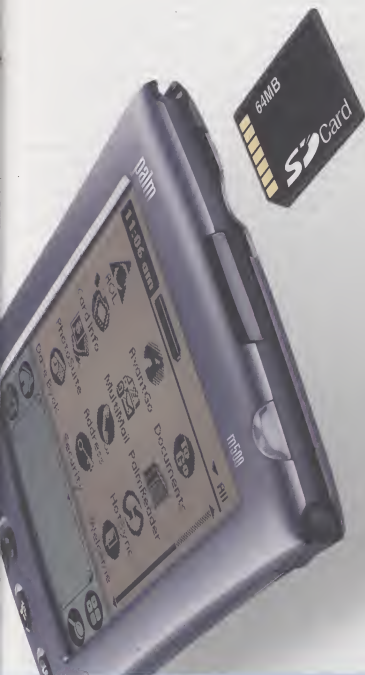
Every type of paper, printer, monitor, or other output media has a certain range of colors, or gamut, it can display. The same is true of color methods, such as RGB or CMYK. This diagram illustrates the range of the color spectrum both methods encompass.

by William Van Winkle

Introducing the new Palm™ m500 handheld. Inside its sleek little chassis, we've added an expansion slot so you can turn it into the ultimate photo album or eBook. The optional SD cards also let you back up or increase memory, or even access worldwide travel guides. As for included applications, you can download email, import and update Excel spreadsheets, even customize and manage web content with the MyPalm™ portal. We also included mobile connectivity software—add a modem or compatible mobile phone and your information can be accessed wirelessly. It's time to mobilize.



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this expandable
had an elastic waist.



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Best Buy

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OfficeMax

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Adobe PageMaker 7.0

A Long-Awaited Update To The Definitive Desktop Publishing Program

The introduction of Aldus PageMaker was one of the defining points in bringing publishing to the desktop. Together with the original Apple LaserWriter printer and the Macintosh computer system, PageMaker helped launch the desktop publishing revolution in the late 1980s. PageMaker later brought the same powerful desktop publishing tools to Windows users. Adobe maintains Macintosh and Windows versions at the same release level, with the same features, allowing for smooth interoperability between the two platforms.

Adobe took PageMaker in a new direction, emphasizing its role in the business market by adding a wide selection of templates and other aids for quickly and easily creating marketing, sales, and other types of publications. PageMaker 6.5 Plus was the first iteration aimed at the more casual user who is not a design professional but wants to create professional-looking newsletters, brochures, and other publications. PageMaker 6.5 Plus kept all of the professional tools, including the ability to output content for prepress service bureaus and commercial printers, while adding setup aids to make the design and output process smoother and easier. The built-in Help feature is extensive, searchable, and easy to use, although it's browser-based, which requires launching another application any time you want to look up a topic.

Moving beyond its print heritage, PageMaker also supports electronic publishing. Using the included Acrobat Distiller, you can create PDF (Portable Document Format) files. PageMaker can also create eBook (tagged PDF) files, an electronic book format from Adobe. eBook files reformat pages automatically to fit the user's monitor, and users can read them on any type of computer.

PageMaker continues to set its sights on the corporate market, although it also includes new features of interest to designers. When this article went to press, PageMaker 7.0 was expected to be released soon. Here we look at the

PageMaker 7.0 beta; some features, names, or locations may be different in the final version.

What's New In PageMaker 7.0

Long-time users of PageMaker may be surprised that the interface of PageMaker 7.0 is virtually identical to PageMaker 6.5 Plus. However, underneath the same exterior are a number of useful new features, including support for native Adobe Photoshop and Adobe Illustrator files, a converter utility that lets you open Quark XPress 3.3 to 4.1 files from within PageMaker, and the ability to merge text and graphics originally stored in databases or spreadsheets. PageMaker 7.0 can also create and view Adobe PDF files and place PDF files created by Photoshop 5.x to 6.x or Illustrator 9.x directly into PageMaker documents.

Goodies

When you buy PageMaker, you get two CDs: an Application CD and a Content CD.

The Content CD is packed with templates, clip art, photos, and fonts.

Templates. Following the trend started with PageMaker 6.5 Plus, PageMaker 7.0 features a large selection of templates and images. With over 300 templates in 20 categories, including ads, brochures, business cards, flyers, newsletters, and reports, you should be able to find the template you need to get started. Unfortunately, PageMaker uses meaningless names for templates, such as 1000327.PMT, and does not offer a thumbnail preview option. Finding the right template involves opening every template until one strikes your fancy and then repeating the process the next time you need a template.

Clip art and photos. In addition to templates, PageMaker also includes 4,700 high-resolution, color illustrations in Adobe Illustrator or JPEG (Joint Photographic Experts Group) format, as well as 300 high-resolution photographs. Like the templates, the



illustrations and photos are organized in folders by category. They use the same unhelpful naming convention and lack previews, although a PDF catalog includes thumbnails of all images. Images in the catalog are organized by category but are not organized within each category (photos are mixed in with illustrations; an image of a panda is flanked by a bird and a crab), so finding a particular image requires time and patience.

Fonts. PageMaker 7.0 includes a collection of 50 Adobe fonts. The PageMaker installer installs some of the fonts; the rest are on the CD in the Template Fonts folder. If you don't install these extra fonts (you can use the supplied ATM installer to load them onto your system), you may see warning messages about missing fonts when you open a template.

Tools & Features

Once you get beyond PageMaker's minor naming convention and installation shortcomings, you'll find some of the best and easiest tools available for creating professional-looking documents.

Frames. PageMaker offers you two main ways to work. For small documents, you may find it easier to drop text blocks and graphics onto the page and then manually adjust them to fit. With larger documents, frames may be more useful. Frames let you design what your document will look like using boxes as placeholders for text and graphics. This lets you create the design before the text is written or before the graphics are selected or created.

Frames can contain text or graphics, and you can make the frame outline from any of the available polygon drawing tools. In addition to rectangular frames, you can create circular and multisided polygon frames. You can also use frames to create your own templates, very handy for producing newsletters, flyers, or product brochures with a consistent look.

Frames are more than just placeholders for future content. You can link frames together so that text that is too large to fit in one frame flows into another frame. These threaded frames make it easy to manipulate text that continues from one page to another. You can mix and match both methods of working (frames or no frames), not only in the same document, but also on the same page.

Master Pages. PageMaker's Master Pages feature lets you create a common look throughout a multipage document. Place common design elements, such as headers, footers,

rulers, margins, and layout guides on a master page, and all subsequent pages will have the same items in the same locations. A master page can also contain any text or graphics that you want to include on all pages.

If your publication will use facing pages, you can create a master document spread to cover both right and left pages. You can also create additional master pages for your publication as needed, as well as create pages that are not based on any master page.

Layers. Layers are like transparent sheets you can place over a page; each layer can contain different types or mixes of objects. There might be a text layer, a graphics layer, and an additional text layer, perhaps for printing in multiple languages. Layers can be turned on and off, which lets you focus on specific elements or tasks, such as proofreading text.

Tool palettes. PageMaker's interface lends a helping hand in keeping things well organized and intuitive. If you've used another Adobe product, you've already encountered the same floating tabbed palettes of tools, including styles, colors, layers, hyperlinks, and drawing and text tools. All are easy to use, and in addition to being able to position them where you need them, you can easily hide them when you need more room on-screen. The consistent user interface makes it easy to move from one Adobe product to another and is just as easy for new users to learn.

Type tools. PageMaker 7 wouldn't be considered a publishing tool if it didn't give you control over text. In addition to the obvious tools common to word processors, such as extensive support for styles, you will find tools you won't see in most word processors, including kerning (adjusting the space between letters), leading (adjusting the space between lines of type), tracking (adjusting the space between words), and scaling (adjusting the width of characters). The additional type tools let you fine-tune your documents and give them an unmistakably professional touch.

Input & Output

PageMaker 7.0 offers new file import choices, including support for native Photoshop and Illustrator files, converters for Quark XPress and Microsoft Publisher files, and a new data merge tool.

Importing text and graphics. PageMaker 7.0 features new import capabilities that make placing graphics easier than ever. With support for native Photoshop 5.x to 6.x files, you no

Quick Reference

PageMaker 7.0

MSRP (Mac and Windows): \$499
Upgrade from version 4.0 or later: \$79
Adobe Systems
345 Park Ave.
San Jose, CA 95110
(408) 536-6000
(800) 422-3623
<http://www.adobe.com>

Mac OS 8.6 to 9.1 or Mac OS X (classic mode)

16MB RAM (64MB RAM recommended),
100MB free hard drive space (150MB recommended); 8-bit/256-color screen display (24-bit/millions recommended), 800 x 600 resolution; CD-ROM; PostScript Level 2 or higher printer.

Windows System Requirements:

Windows 98/Me, Windows NT 4.0 (Service Pack 5 or later installed), or Windows 2000; 32MB RAM (64MB recommended); 175MB free hard drive space (200MB recommended); 800 x 600 monitor resolution; CD-ROM; Postscript Level 2 or higher printer.

Pros:

- PageMaker 7.0 is a feature-rich design tool that can create output for a wide variety of formats, from laser printers to prepress to electronic PDF and eBook formats.
- This is a professional-caliber product, offering many of the tools and features professional designers need.

Cons:

- Poor implementation of template and artwork naming structure makes locating specific templates, clip art, or photos unnecessarily difficult.
- Although PageMaker requires less of a learning curve than other similar programs, users with no design background shouldn't expect to jump right in and start producing professional-looking documents.

longer have to save Photoshop files in PSD format, which merges the layers in an image, preventing you from making any changes, before bringing them into PageMaker. You can even make changes to the original Photoshop file and have PageMaker automatically update the placed image.

You can also directly import Illustrator 9.x files into PageMaker 7. Illustrator's native file format is PDF, so when you import an Illustrator file, you'll see the Import PDF dialog box. You can also place PDF, EPS (encapsulated PostScript), and a number of other text and graphics file formats.

Converting files. PageMaker 7.0 has updated converters for processing QuarkXPress 4.x and Microsoft Publisher 2000 files. You can also import Microsoft Word 2000, Microsoft Word 2001 (Macintosh version), and RTF (rich text format) files. Other file types you can import include Microsoft Graph 2001, Microsoft Organization Chart 2.1, Microsoft Word Pictures, and Microsoft Excel worksheets and charts.

Merging data. In response to requests from users, PageMaker 7.0 now includes a data merge tool, letting you create customized content for publications. You can use Data Merge to create direct mail, form letters, catalogs based on graphics or other information from a company database, and company business cards. Data Merge supports information from databases, spreadsheets, and other applications that can save data in comma-separated files with the .CSV or .TXT extension.

Outputting files. PageMaker supports a range of methods for sharing your creations. The most common, and certainly the one at the heart of most publishing, is outputting the file to an in-house printer, a quick printer, or a service bureau (a company that produces high-resolution output of files on paper or film, which is then used by a commercial printer to produce brochures, newsletters, catalogs, and other printed products). Unlike some competing business publishing products, which are designed mainly for in-house output on laser printers, PageMaker was designed from day one to produce professional quality output for commercial print shops.

PageMaker 7 supports a long list of printers, including all PostScript printers, connected to your computer either directly or over a network. In addition, PageMaker can print to some non-PostScript printers, including PCL (Printer Control Language) printers used on

many Windows systems. PostScript printers are recommended, because publications destined for non-PostScript printers must first have Type 1 PostScript fonts (preferred by service bureaus and commercial printers) converted to another format, usually TrueType, before printing. This conversion process, known as Font Matching, can produce undesirable results because the created or substituted font may not match precisely.

PostScript output is a requirement for files you will send to a service bureau or commercial printer. PageMaker supports all of the file generation needed for sending your job to a service bureau or commercial printer, from creating color separations to performing a preflight check. Preflighting ensures that all of the files and information a service bureau will need to output your document are present, saving time and preventing calls about missing elements.

In addition to conventional printing options, PageMaker also includes Adobe Acrobat Distiller, giving you the option to create a PDF version of your design. PDFs let you share a document across platforms without worrying whether the recipient has the right fonts or a specific application (other than the free Adobe Acrobat Reader). PDFs

embed all document information, including fonts and graphics. PDFs also support embedded linking.

Because Adobe has been one of the champions of the eBook format, it comes as no surprise that you can use PageMaker to create eBooks. eBooks use a variant of the PDF format, called tagged PDF. You can view them on a wide variety of devices, including desktop computers, notebooks, PDAs (personal digital assistants), and special eBook readers. When you save a document in eBook format, the text and graphics become independent of screen size and resolution, letting you view the file on any device that can read eBook format, using the free eBook reader (<http://www.adobe.com/products/ebookreader/main.html>).

The Bottom Line

With the addition of templates, clip art, and photos, PageMaker 7.0 is a logical choice for users who need professional quality output but don't have access to a professional design department or the time and patience to learn a complicated program. **[B]**

by Tom Nelson and Mary O'Connor

Adobe Acrobat 5.0

PDF (Portable Document Format) files are

increasingly common, frequently replacing printed documents such as user manuals and product catalogs. In addition to reducing or eliminating printing costs, PDFs offer other advantages. PDF files embed fonts and graphics, ensuring that end users see a document exactly as the document's creator intended it to look. The only tool the end user needs to view the file is the free Adobe Acrobat Reader (<http://www.adobe.com/products/acrobat/readstep.html>). Acrobat Reader also works as a plug-in with most Web browsers, letting

users view PDF files from within their browser.

While PageMaker 7.0 can create PDF files, it lacks many of the capabilities available from Adobe Acrobat 5.0 (MSRP \$249, upgrade \$99; <http://www.adobe.com/products/acrobat/main.html>). Acrobat lets you convert existing documents to PDF format, merge multiple documents into a single PDF document, and use PDF documents as part of a collaborative workflow. You can add comments, as well as embed signatures within the document, as a method of signing off on the content or design. You



also have greater control over security, including determining whether a document may be printed or just viewed and whether text or graphics may be extracted from the document. If you frequently produce electronic documents or need more control over electronic documents, add this powerful tool to your publishing arsenal. **▲**

Plug-ins: PageMaker

These Little Gems Give You Endless Publishing Possibilities



It's pretty hard to find something that you can't improve on. You can make a raise even better by adding still more money; even a brand-new house can improve with a different paint color or new furniture. PageMaker 7.0 is no different: It's a great program you can make even better with plug-ins and special effects.

Plug-ins are software modules that add new features or services to a larger system. PageMaker has some plug-ins that come with it. These "resident" plug-ins automatically install when you install PageMaker and work as part of the program. Other plug-ins are programs you buy from third-party vendors who write the plug-ins to function inside or with PageMaker.

Effects and filters such as the 8bf files designed for Photoshop, Paint Shop Pro, Illustrator, and a number of other graphical applications are other types of plug-ins you can use to enhance PageMaker. These files

are considered plug-ins because users can access them directly through PageMaker's menus if they are installed in the correct directory. This ability to use the effects files from other desktop publishing programs in PageMaker opens a new world of graphics capabilities. We'll look more at how you can do this a little later.

The plug-ins, effects, and filters files we present here are compatible with the latest version of PageMaker, 7.0, as well as all the previous versions through 4.0.

Resident Plug-ins

You'll find these plug-ins in the Plug-ins submenu under Utilities. They automatically install when you install PageMaker.

Add Cont'd Line. This plug-in automates the process of "jump lines," such as "continued on page 11" or "continued from page 14," which appear in newsletters, magazines, and newspaper stories. As long as you create

your text in text blocks, this feature will automate this process for you; however, do not add the jump lines until after layout and pagination, because PageMaker will not update the pagination changes.

Balance Columns. Use this tool to balance text at the top and bottom of multicolumn pages such as newspapers, telephone books, and magazines. Select the columns you want to balance, then choose this option. PageMaker makes the text even across the top or bottom of the page.

Build Booklet. This is an excellent feature for designers who lay out such things as manuals, books, and magazines because it arranges all the pages in a publication based on how they should print. For example, if you are creating a double-sided manual on half of a legal-sized page, pages one and four are on the back of pages two and three. This is not how they are presented on the screen, but the booklet feature arranges them accordingly so they print and fold in numerical order.

Bullets And Numbering. You can use this plug-in to apply an automatic numbering scheme to any set of consecutive paragraphs (followed by tabs) throughout a publication. Numbers are not automatically regenerated if you insert new paragraphs, so do not apply the numbering until the document is complete. Bullets are user-defined based on the various fonts your printer supports; for example, such fonts as Webdings, Wingdings, Symbol, CommonBullets, and GeographicSymbols are all typefaces that offer unique bullets.

Change Case. With this plug-in, you can select a body of text (a single word, group of words, sentence, paragraph, or entire document) and change the case from its typed version to lowercase, UPPERCASE, Title Case, Sentence case, or tOGGLE cASE. One click fixes the case adjustment throughout the document in seconds.

Create Colour Library. This plug-in is for personal, custom color libraries. If your company's logo, stationery letterhead, or promotional materials use specific Pantone colors, you can select or create the colors for these projects from one of PageMaker's standard libraries and then save the palette of corporate colors in a separate library called Corporate Colors.

Drop Cap. Want to create a dramatic opener to an article or newsletter? Use this plug-in to make the first letter in the first

word at the beginning of a paragraph larger and bolder than normal.

EPS Font Scanner. This plug-in lets you search for EPS (encapsulated PostScript) fonts used in an imported document and then alerts you if there are no corresponding screen fonts on the computer.

Global Link Options. Use the Global Link Options plug-in to change all the linked information related to imported text, charts, and graphics on a given page, range of pages, or publication.

Grid Manager. The Grid Manager displays an interactive design window that lets you create user-defined grids for master pages, individual pages, or groups of pages throughout a publication. This is particularly helpful if you are designing a magazine layout that uses different layouts on each page. The design window provides a preview pane so you can view your grids as you design them.

Keyline. Use this plug-in to automatically generate thin borders around page objects such as boxes, ovals, and rectangles. This lets you easily standardize the border widths throughout a publication.

Merge Records. This plug-in works with the new PageMaker 7.0 Data Merge feature, which provides mail merge and data merge capabilities directly from external programs such as Excel, Access, and dBase into PageMaker. Now you can mail merge your Christmas cards and envelopes, all dressed up with colorful graphics, directly from PageMaker.

Publication Converter. This plug-in gives you alternate options for opening files from older versions of PageMaker and converting them to the current version. With Publication Converter, you can open and convert multiple files instead of just one file at a time as you would with the standard File Open command. The one catch is that you can translate platforms or versions but not both simultaneously, so if you want to open a Mac PageMaker 5.0 file in a Windows PageMaker 7.0 program, you must synchronize the versions first.

QuickTime Media. This plug-in is a QuickTime movie frame editor you can use to edit selected movie frames within a publication.

Running Headers And Footers. Click this plug-in option to display an interactive design window that offers master page or regular page options for document headers and footers, such as including all pages, excluding the first page, or selecting a range of pages. This plug-in also provides content options from text that's already on the page, such as the first word of the first paragraph or the entire first paragraph, and lets the designer point, click, and drag these items anywhere on the page. For example, if you want to add the first sentence on a specific page to the header or footer, just highlight that sentence, and PageMaker lets you drag a copy of it into the header or

footer section. This is particularly helpful for multiple chapters in a single file, because you can change headers and footers anywhere in the file instead of just on the master pages. In addition, you can define and apply Search and Content styles from this window.

Save For Service Provider. This plug-in ensures that your publication (or a PostScript file) contains all the necessary elements required to print successfully, specifically for professional print jobs outsourced to a printer or publisher.

Show/Hide Toolbar. If you want to display or hide the PageMaker button toolbar, this is the plug-in to choose.

Word Counter. Need to know if you can quit typing yet? Use Word Counter to count the number of characters, words, sentences, paragraphs, text objects, and stories in the open document.

Third-Party Plug-ins

These plug-ins are developed by independent vendors for use with PageMaker.

Edge & Frame Galaxy

The CD version of the Edge & Frame Galaxy (\$49.95) PageMaker plug-in includes

1,450 edges and 150 colored frames in over 120 different categories. (Get 400 edges and 50 frames in the \$19.95 download version.) You can use these decorative borders to accent text sidebars, embellish photographs, enhance backgrounds or watermarks, decorate greeting cards, and create specially shaped buttons. Resolutions range from 72dpi (dots per inch) to 300dpi on various borders, and the CD comes with some additional goodies for your other graphics applications, such as Photoshop and Paint Shop Pro 7.0.

<http://thepluginsite.com/products/index.htm>

FRÉMZPS

This plug-in from ShadeTree Marketing is a collection of 404 decorative borders, which are proportionally sized based on the box or rectangle you draw in PageMaker. FRÉMZPS (\$99) installs directly to the PageMaker Plug-in folder, so it appears on the Plug-In drop-down menus. You can add color, combine several borders to create one unique design, or crop the individual images within the borders to get variations of each design. Use these incredible borders to frame photos, graphics, and text in your PageMaker newsletters, brochures, advertising flyers, and even greeting cards. Free samples are available on the Borderguys.com Web site or you can order the complete four-library system.

<http://www.borderguys.com>

GalleyMaster XD

This program from GalleyMaster Software automates the process of formatting database information and graphics in your PageMaker documents. This means you can import campus directories, catalogs, and price and inventory sheets from dBase or Access, and GalleyMaster XD (\$299) will format the data to match the rest of the unique fonts, paragraph alignment, and spacing in your publication. This is an incredible time-saver for users working with large database files.

<http://www.galleymaster.com/GalleyMasterXD.html>

Harry's Edges

This is a free collection of 50 creative borders, or edges, in JPEG (Joint Photographic Experts Group) format. Use one of the unique frames to enhance your graphics and photographs. Some of these decorative



These are just a few of the 404 borders you can choose from with the FRÉMZPS plug-in.

borders, such as doors, are the most unusual and diverse edges we've seen.

<http://www.thepuginsite.com>

MergeMaster

MergeMaster (\$99; formerly known as GalleyMaster MM) is a mail merge plug-in that performs standard word processing mail and data merge tasks in PageMaker. You can merge the databases stored in other programs such as Excel, dBase, and Access into your PageMaker letters, forms, catalogs, business cards, and yearbooks by entering the field names inside the arrow brackets (<<Company Name>>). You can also merge text files, graphics, and PostNet barcodes. MergeMaster loads independently of PageMaker, but you must have PageMaker installed and running to perform many of MergeMaster's functions.

<http://www.galleymaster.com>

[/MergeMaster.html](http://MergeMaster.html)

PageForm

PageForm (\$149) is a plug-in for interactive Web site pages created in PageMaker. When you select PageForm, it creates a floating palette on your screen at your cursor point, which then creates the control item and lets you modify its properties. You can create text fields, radio buttons, checkboxes, and other similar types of controls and buttons typically found within online forms. This program's best feature is that you can use the controls to create printed forms, which contain such things as "fill in the blank" fields and checkboxes for fancy, professional business forms and applications.

<http://www.mapsoft.com/pageform.htm>

PagePlugins

This bundled tool offers PageMaker typesetters and layout designers some ease and flexibility when producing professional books, manuals, and documents. PagePlugins (\$79) contains several plug-ins, including Measurement Converter, which converts measurements such as inches, millimeters, picas, and ciceros, back and forth from one to the other. The Open Book plug-in provides simultaneous access

to multiple documents that are connected (such as all the chapters of a manual or all documents related to a single project). The Style Groups plug-in lets you import and export grouped style sheets without templates. Want to remember the style you used to create a certain document? Use Style Report; it gives you a list of the



These example templates are just two of PrePage's 300 PageMaker templates that will help you produce professional presentations.

attributes of each Style Group you've created. TabIt saves tab rulers for tables and charts that require unique tab settings so you don't have to apply a style to each tab grouping.

<http://www.mapsoft.com>

PhotoTiler

You can access this unique software directly from the PageMaker Utilities menu. PhotoTiler (\$44) creates proof sheets much like professional photographers use, arranging the images on a page for a creative display of graphics or photographs or both, such as those used in photo albums, catalogs, advertisements, and brochures. You simply select the number of columns and rows for each page and the spacing between those columns and rows, then batch load the images, and PhotoTiler fills in the blanks in just seconds. It also automatically adds borders and the image file names under each photo.

<http://www.andromeda.com>

PrePage

A plug-in by Chuck Green, PrePage (\$99) offers 300 PageMaker templates for creating professional brochures, business cards, advertisements, direct mail projects, calendars, forms, product sheets, newsletters, promotional materials, and much more. Once installed, you can access this plug-in through PageMaker just like any other file. Just choose File, Open and select the template which applies to the task at hand. PageMaker 7.0 offers an array of graphics to dress up your predesigned templates, or use your own graphics and photographs to make a professional presentation in any forum.

<http://www.ideaabook.com/prepage.htm>

Sonar Bookends

Sonar Bookends (\$195) easily indexes your documents, manuals, and printed projects. Just export all of the files in a manual or project to a separate folder, then give Sonar Bookends a list of words to create indexes by, choose an index that's listed by word frequency, or let Sonar Bookends create the index by proper nouns. Sonar Bookends Professional (\$395) also offers an English parsing engine that breaks down the sentences into subjects, which are then indexed by those subjects.

<http://www.virginiasystems.com>

8bf Effects & Filters Files

As we mentioned earlier, users can drop effects and filters files created for such programs as Photoshop into a certain PageMaker folder and then use those files as a part of PageMaker. Most of the filters, textures, patterns, and effects in the Adobe family of products are interchangeable. In fact, all of the Adobe Photoshop effects are included in the PageMaker software now, so even if you don't own a copy of Photoshop, you can use those effects to enhance, distort, and manipulate your images.

How it works. The key to using Photoshop effects and filters with your PageMaker files is the image format; the image must be a TIFF (Tagged Image File Format) file. PageMaker will not recognize the .BMP, .JPG, or even the Photoshop file extension .PSD. The Photoshop Effects files, located in PageMaker at C:\PAGEMAKER7.0\RSRC\USENGLISH\PLUGINS\EFFECTS, are all 8bf files, but



not necessarily those files with the .8Bf extension. (The capitalized extension version has some variations in the file that, typically, are not compatible.) Note that PageMaker will not let you undo an effect once it is applied, so practice on copies of your original image before you select the final effect.

Because Adobe purchased PageMaker, the Adobe family of products is now more compatible. This means you can visit the Effects and Filters folders in other Adobe programs and copy the files with an .8Bf extension to the PageMaker Effects folder to gain access to a new collection of special effects. In addition, you can search the Internet for Photoshop and Illustrator plug-ins; many third-party vendors use the .8Bf extension for their plug-in files, so many of these files are also compatible with PageMaker. Some of the older 8Bf files aren't compatible, though, so be sure to test one from each manufacturer before you copy the entire library to your Effects folder. (Check the file dates; most dated prior to 1998 will not work.)

Things to keep in mind. Be aware that the more effects files you have in your PageMaker folder, the longer it will take for each one to load in the effects window, so discard the effects you don't use or don't like or copy them into a secondary folder for occasional use later. Also, some effects require that you have the files Msvcr10.dll and Plugin.dll in your Windows System folder before they will work. If you find that some of these effects and filters are not working, check the System folder for these two files. If you do not have them, you can download them for free at <http://www.glorianon.com/psp/psp15.html>. For NT users, these files go in the Windows System32 folder, not the System folder.

The following products are all special effects and filters plug-ins files designed for Photoshop, Illustrator, or Corel Paint that you can copy to the PageMaker Effects folder and apply directly to a TIFF image in PageMaker. Remember, you can't undo the effect after you apply it, so practice on copies of the original image first.

ArtiFactor and Kinetix Lab

Here's a nice collection of plug-in filters from Amphisoft. Get the whole set for \$18 or a minimal set of effects for free. Unique effects include Shaman, which blurs, sharpens, and despeckles images and provides edge detection.

Raster Master offers a variety of cool filters and textures, including TV-screen, delicate woodcut, simple textures, and weird moiré. Metalwork II converts flat text and logos to shiny, 3-D metallic objects. ArtiFactor and Kinetix Lab are feedback image processing filters, which produce wild effects and organic textures. Thread Master provides a cross-shaped smudge effect, and Out of the Noise adds noise and diffusing capabilities. ArtiFactor is a freeware product, and Kinetix Lab is shareware.

<http://graphicssoft.about.com/computer/graphicssoft/cs/pluginsfreepe>



Harry's Filters offers 55 free effects plug-ins such as Nail Art, Twilight Colors, Streamer, and Old Film.

Harry's Filters

This freeware product from The Plugin Site offers special effects plug-ins you can download directly to your PageMaker Effects folder and begin using right now. In addition to manipulating TIFF images, the 55 plug-ins in Harry's Filters offer effects such as Nail Art, Twilight Colors, Streamer, and Old Film. In addition, you can save an empty box as a TIFF image, place it in PageMaker, and then select it and add colorful gradients to the box. You can then enlarge the box to full-page backgrounds such as Mystic Mountain, Double Sphere, Chaos, and Stars.

<http://www.thepluginsite.com>

KPT 6

Formerly known as Kai's Power Tools, KPT 6 (\$149) is another powerful plug-in application with 8Bf files you can install directly to PageMaker's Effects folder. This plug-in software includes real-time 3-D tools, particle growth effects, and professional blurs. Effects include ShapeShifter, which creates shapes and objects with refracting glass edges and 3-D light sources on beveled metallic surfaces; Orblt effects, which explode an image into thousands of spheres of various sizes, densities, and 3-D lighting; FiberOptix, a feature that creates furry text, green shag carpet, purple plastic silly string,

and creeping vines; Blurrrrr, a professional suite of filters, including zoom and spin; and FraxPlorer, the definitive fractal explorer, which features real-time fly-throughs and some pretty incredible fractal styles.

<http://www.corel.com>

Panopticum Photo FX

Panopticum Photo FX (\$139.95) from The Plugin Site is another collection of special effects that was designed for Adobe Photoshop but also works in PageMaker if you install it in the Effects folder. This collection includes Fire (sold separately for \$49.95), which produces realistic flame effects; Lens Pro (\$49.95) and Lens Pro II (\$59.95), tools for the quick and easy creation of lenses, crystals, glass surfaces, and glass text on images; Digitalizer (\$24.99), a matrix containing the elements that form a figure of the initial image; and Alpha Strip (\$39.95), a filter of lines, waves, dots, circles, boxes, and a maze in various directions and forms, which is superimposed over the image to create a sectioned or divided appearance.


<http://thepluginsite.com/products/index.htm>

Plugin Galaxy

Also from The Plugin Site, Plugin Galaxy (\$49.95) has 20 8Bf plug-ins. These plug-ins include 120 special effects such as Transparency Manipulation, Blurring, Texture and Pattern Generation, Mirroring, Warping, Pop Art, Noise Creation, Glass, Rainbow, Sunshine, Zooming, and Star. You can do such things as add edges and manipulate and combine effects to create literally thousands of cool images. Access these effects directly through PageMaker's Element menu, making image manipulation an easy point-and-click process.

<http://www.thepluginsite.com>

Improve Your PageMaker Power

As you can see, PageMaker and its colleague vendors offer a tremendous variety of plug-ins you can use to decorate, enhance, and customize your documents for an impressive outcome. Many of these products are free or inexpensive if you get them through the Internet. Let PageMaker 7.0 and its accompanying plug-ins help you create the same professional manuals, brochures, advertisements, and promotional materials as the experts. 

by Julie Sartin

Projects: PageMaker

Learn How Easy It Is To Make It Yourself



Here's My Card

One way to give your small business a more professional look is to create business cards to represent it, a task PageMaker can easily handle. This project sets up 10 business cards to the page because that's the arrangement for most of the perforated card stock made to run business cards on your printer. To begin, choose New from the File menu and select a standard 8.5- x 11-inch letter page, oriented Tall and single sided (remove the check mark from the Double-sided checkbox) in the Document Setup dialog box. You should have only one page, with left and right margins both set at 0.75 inches and top and bottom margins both at 0.5 inches. Click OK.

Once your new document is set up, click Layout, Column Guides. Set the number of columns to two, with zero space between them, and click OK. Make sure the rulers are turned on. (Choose Show Rulers from the View menu.) Move the ruler zero point (click and drag the square in the upper-left corner of the screen) to the upper-left corner of the left column. The line between columns will now line up with 3.5 inches on the ruler and the right side of the right-hand column at 7 inches.

Set guidelines. Pull down a guideline to align with the 2-inch mark of the vertical ruler. That guideline, along with the left, right, and top borders of the columns, now defines the finished size of the top two business cards. Select the Zoom tool, and zoom in on the area that will be the upper left card.

Use guidelines to set the internal margins for your cards. In our example, we used 1/8 of an inch for internal borders, so we set the vertical guidelines at the 1/8 and 3-3/8 marks on the horizontal ruler and the horizontal guidelines at the 1/8 and 1-7/8 marks on the vertical ruler.

Add content. To put your logo or other graphic elements on the business card, choose Place from the File menu. In our example, the only graphic is the "logo" symbol; everything else is text. Create a text box using the Text tool, and type in the text elements approximately where you want them. Now set your type style and print size. Our example has the business name "Albert's Cool Stuff" in 22.5-point Albertus Medium, the proprietor's name in 8-point Lucida Sans Unicode Italic Bold, and the contact information in 8-point Lucida Sans Unicode

Although PageMaker's many features and tools may make it appear complex, most of the work you'll do relies on a handful of techniques. We'll deal with the most important as we tackle three sample projects designed to show you the ropes. Keep in mind there may be more than one way to accomplish some of the tasks involved. Those shown here, however, should get you off to a good beginning.

Tips To Start With

Getting started on a project should never be a problem because PageMaker offers a wide assortment of templates for all sorts of projects, including brochures, business cards, labels, newsletters, posters, reports, certificates, and menus. Find them by clicking the Window menu and selecting Plug-in Palettes,

then Show Template Palette. Use the Category menu to select the type of publication you have in mind.

If you're creating your project from scratch, it's best to have as much work done as possible before opening PageMaker. If there's writing involved, as in a newsletter or a brochure, write it first in your word processor rather than trying to write it into your PageMaker file. Similarly, if you're creating graphics, create them before you start trying to put everything together.

It's also wise to have your design ideas worked out in advance. Even a pencil sketch describing where to place such things as headlines, text, graphics, and columns will save you time and trouble when you start constructing your project pages.

Normal. Eight points may sound small, but it's fine for business cards.

Fine-tune the positions by aligning your elements. You can't go wrong by having all elements either centered or aligned against a margin. (Choose Alignment from the Type menu.) However, elements should also align with each other. Use horizontal and vertical guidelines to help place the elements precisely. It may require some working back and forth, resizing this and repositioning that.

Lock in changes. When everything is positioned, lock it into place. First, use the pointer tool to click each element while pressing the SHIFT key. When everything is selected, choose Group from the Element menu. Now everything will move as a single element, retaining all alignments. Still, you don't want to knock that out of position either, so while the whole group is still selected, choose Lock Position from the Element menu. You now have one card on your sheet locked down.

Fill the page. Keep the group selected or select it again if need be. Choose Copy from the Edit menu and then choose Paste Multiple from the same menu. In the Paste Multiple dialog box, set the number of copies to paste to one. Set the Horizontal Offset to 3.5 inches and the Vertical Offset to zero. Click OK. A copy of the entire card will appear in the upper-right position of the page. Lock it into position, as well.

Now select both cards and choose Copy, Paste Multiple from the Edit menu again. This time, select four copies, a horizontal offset of zero, and a vertical offset of 2 inches. When you click OK, the two cards will duplicate themselves every 2 inches down the page, filling the page with a total of 10 cards. Lock them into place, and you're done. Now you can get rid of the guidelines and save your file for printing whenever you need more business cards.

Start Spreading The News

Our next project is a simple newsletter. A dab of color can really help make a newsletter visually interesting, and you can add color

easily and inexpensively as long as you stick to what's known as spot color. There are two approaches to printing color: process color and spot color. We'll talk about process color with the next project. Spot color generally uses black as the main color and a second color for accent. Spot color is less expensive than process color; we'll use it here. The first

step in preparing this newsletter, then, is to select your accent color. Because most printers use the Pantone Matching System of ink colors, that's what we'll use.

From the Window menu in PageMaker, select Show Colors and click the New Color icon

(the sheet of paper at the bottom). From the Libraries drop-down menu, choose Pantone Coated if you'll be printing on coated (glossy) paper or Pantone Uncoated if on uncoated paper. Now scroll through the Color Picker until you find the color you like. Select it and click OK. Make sure the Type selection is set to Spot and the Overprint option is unchecked. Click OK. PageMaker will add that color to your color palette.

Set up. Because it's often easier to work in printer's measurements of picas and points (there are 6 picas in an inch), we'll make PageMaker display in these terms for this project. Do this by choosing Preferences from the File menu and selecting General. Choose Picas from the Measurements In and Vertical Ruler drop-down menus. Click OK. Now you're ready to set up your newsletter document. In our example, we chose letter size (8.5 x 11), two pages, and double-sided with side margins of 3 picas, 6 points, and top and bottom margins of 4 picas. Click OK. Using the column guides option in the Layout menu, set both pages as having 3 columns with 1-pica gutters in between.

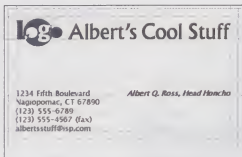
You'll be using several frames, and you won't want internal margins or lines around them, so reset the defaults before you go any further. With nothing selected, choose Stroke from the Element menu and select None. Then

choose Frame from the Element menu and select Frame Options. Set all the boxes in the Inset section to zero. Click OK.

Create the banner. In our example, the banner that holds the newsletter's title is merely two text blocks. The word "News" goes into place first. Create a text frame in the upper-right corner of the newsletter and type in the word. Highlight it and choose Paragraph from the Type menu. Choose Right from the Alignment drop-down menu and click OK. With the word still highlighted, click the accent color you chose earlier from the Colors palette. Then choose Font from the Type menu to choose a bold typeface. While the text is highlighted, choose a font size.

To add the words in the upper-left corner of the newsletter banner, create a frame there and type, "Newsletter." Follow the same procedures to set the typeface and font size. You'll want a smaller typeface but one that is still bold enough for readers to easily read where it overlaps the accent color of the rest of the banner text. We selected 40-point American Typewriter Bold. This text is aligned left.

Beneath the banner. We added a black bar below the title to hold the newsletter's volume and issue number and the newsletter's slogan. Create this bar as a frame (click the Frame tool, the square with the "X" in it) and type the text you want. We typed "All The News That Fits, We Print" on the left and added Vol. 4, Issue 17 on the right. We set these two bits of text apart with the crude but effective technique of setting the frame's paragraph alignment to Center and then typing spaces between

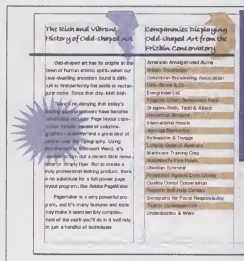


Make use of PageMaker's guides to align your business card text with the margins and the other text.

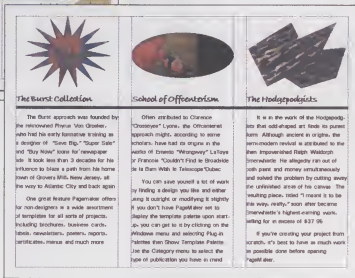
PageMaker Shortcuts

Here's a list of some PageMaker keyboard shortcuts we think are the most useful.

Start New File	CTRL-N
Open File	CTRL-O
Save File	CTRL-S
Save File As...	SHIFT-CTRL-S
Document Setup	SHIFT-CTRL-P
Print	CTRL-P
Go to Page #	ALT-CTRL-G
Fill and Stroke	CTRL-U
Place command	CTRL-D
Frame Options	ALT-CTRL-F



Creating a tri-fold brochure isn't as complicated as you might think. Using our image manipulation tips, you should be able to come up with something similar to our finished product.



Set the scene. Regarding the set-up of a tri-fold brochure, you'll note that our example has gutters between columns that are the same width as the margins (0.5 inches in this case). This gives a symmetrical look to the opened piece, but there's a trade-off. When folded, the left margin of the cover is only half the width of the right. To make them symmetrical when folded, the gutters would have to be twice as wide as the margins, which often makes for unattractively wide gutters. You'll have to use your judgment for what looks best in your case. In our example, the lopsidedness is disguised by having the colored block extend halfway into the gutter and bleed off the right side of the page. Therefore, the entire front will seem solidly printed when folded.

By now, you should be comfortable with the placing and setting of text and graphics, so we'll confine the rest of this description to the special effects you'll need to create a brochure like our sample. Note that the items meant to print all the way to the edge of the sheet actually extend past the edge. This assures a proper bleed off the edge when the page is printed and cut to size.

Create a cool monochrome. PageMaker can apply color to grayscale bitmapped images. We use that ability in our example to create the tinted image on the brochure's cover. The original picture was full color (it's file 0004644.jpg in the PageMaker Nature & Landscapes library), so we had to open it in paint or image management software and convert it to grayscale. We created an irregular shaped frame with the polygon frame tool and used the Place command to apply the image.

To apply the color, press the CTRL key and click the image until four handles appear. Then click the appropriate color in the color palette. We added two Pantone colors: the blue-gray Pantone 652 and the tan Pantone 467, both from the Pantone Coated library. However, we converted them into process colors so that the entire job could be run with four inks, instead of requiring the four process colors plus two spot colors. To do that, select your color and then, in the Color Options dialog box, select Process from the Type drop-down menu and CYMK from the Model drop-down menu. Name the color as you like. Be aware, though, that a process version of a color is rarely exactly the same as the Pantone equivalent.

We also created a lighter version of the blue-gray to go behind text. Double-click a color in the color palette to open the Color Options dialog box. Create a new name for the new color and look at the controls for Cyan, Magenta, Yellow, and Black. They will be given as percentages; reduce each percentage by the same fraction. We reduced all inks to one-third of their original value.

Prevent blacks from graying out. Notice the thick black lines that appear in our

example brochure under the panel headlines and between the cover photo and the title. There is more to the black than meets the eye. It is often difficult to get a good, rich black with process colors, especially when using rules. For that reason, those are not rules but rectangles created with the box graphic tool. Furthermore, we used a special shade of black, called Rich Black.

To add that to your palette, open the Color Options dialog box for Black and add 10% cyan before saving it with the name Rich Black.

We did just the opposite with the tan fields behind every other item on the list in the middle column of the front page.

Those are not graphic boxes but rules. Create a second version of the

paragraph style used for the list. Click Type, Define Styles and choose the new paragraph style. Then click the Edit button, the Para button, and the Rules button. Place a check mark in the Rule Above Paragraph checkbox, and then choose your color from the Stroke Color drop-down menu. From the Stroke Style drop-down menu, select Custom. In the Custom Stroke dialog box, choose the single stroke line and select a stroke weight that is the same as the leading you're using for that text. Click OK to close each open dialog box and check your results. If you need to move the rule up or down a bit, return to the Paragraph Rules dialog box and click Options. Adjust the Inches Above Baseline setting as needed.

Make Your Own

We doubt you'll want to create a business card, newsletter, or brochure exactly like these examples. But the techniques here will see you on your way toward wherever your imagination leads you. **[85]**

by Steve A. Glaser and Elizabeth Lewis

Troubleshooting: PageMaker

Get To The Root Of Your Problems
So You Can Get Back To Work



Adobe PageMaker users might experience problems with the software from time to time, especially when trying to share documents between various programs. While you can trace many error messages to inadequacies with older computers, some problems stem from other sources. We'll help you with some of the other types of errors you might encounter.

1 Problem: After a system crash, I receive an error saying PageMaker can't open the file because there is no "mini-save version."

Solution: From time to time while you're working, PageMaker automatically saves your work; a process PageMaker calls a mini-save. If Windows or PageMaker crashes while a PageMaker file is open, PageMaker will try to revert to the latest mini-save it performed the next time you run PageMaker.

When you run PageMaker the first time after the crash, you'll see a message stating you didn't close the file properly the last

time you used it. You'll then be able to choose whether you want to use the version from the last time you clicked the Save command (by clicking the No button) or the version from the last mini-save. PageMaker performed (the Yes button). If you click Yes, and PageMaker didn't perform a mini-save, you'll see the aforementioned error message. Just start PageMaker again and click the No button this time.

2 Problem: When saving a PageMaker file or trying to print a file, I sometimes receive an "out of disk space" error.

Solution: This error is more common on older computers and on those computers running Windows 95, according to Adobe. If you have less than 5% of free hard drive space, you may need to free more space to avoid the error. You also will need free hard drive space equal to triple the size of your PageMaker file to avoid the error. Try printing the file at a lower quality or replacing high-resolution graphics with low-resolution graphics to avoid the error. Finally, try running ScanDisk and the Windows Defragmenter to fix any problems on your hard drive that could cause the error.

3 Problem: My PageMaker files are taking up too much hard drive space. How can I reduce their sizes?

Solution: The easiest method is to remove unnecessary graphics and switch from high-resolution graphics to low-resolution graphics. You can also compress

TIFF (Tagged Image File Format) images when you place them in the PageMaker file because TIFF images can occupy a lot of hard drive space. Choose Place from the File menu and then click the TIFF file you want to use. Before clicking the Open button, decide whether you want moderate compression or maximum compression. Press the CTRL-ALT keys for moderate compression and the SHIFT-CTRL-ALT keys for maximum compression while clicking the Open button. Hold the keys for at least two seconds.

If those solutions aren't possible for you, try using the Save As command from time to time. When you make editing changes to a PageMaker publication, the file retains some information about deleted graphics and text. Using Save As will reset the file and delete the unnecessary information, shrinking the file size.

4 Problem: I need to convert an older PageMaker file to a new version, but it doesn't seem to work correctly.

Solution: Be patient. Adobe says the conversion process can be extremely long, especially when skipping past a couple of versions, such as from PageMaker 5.x to PageMaker 7. In the newer version of PageMaker, click the File menu and choose Open. Then click the file you want to convert before clicking the Open button.

5 Problem: I can't copy a PageMaker for Macintosh file to my PageMaker for Windows program.

Solution: When you have problems copying files from one operating system platform to another, several issues could be at work. However, here are a couple of the more common problems.

First, make sure you have plenty of free hard drive space. PageMaker requires free space equal to about triple the size of the file before a transfer can occur. Second, try transferring the file from equal version numbers in each platform. For example, if you created the file in PageMaker 5.x for Macintosh, you'll need to save the file in PageMaker 7 for Macintosh before transferring it to PageMaker 7 for Windows.

6 Problem: I think I am receiving PostScript error messages when printing my

PageMaker documents, but the software won't display the exact message.

Solution: You can set PageMaker to print out PostScript errors that occur while it prints the document if your printer supports this feature. Click Start, Settings, and Printers. Right-click your printer and choose Properties from the drop-down menu. Click the PostScript tab (if you have one available) and then click the Print PostScript Error Information checkbox and click OK. Now open PageMaker and choose Print from the File menu, then click the Options button. In the Print Options dialog box, click the Include PostScript Error Handler checkbox.

7 Problem: I am having consistent printing problems using PageMaker and my printer; nothing seems to help.

Solution: You probably have a printer that doesn't support PostScript technology. For the best printing results using PageMaker, you need to use a PostScript-enabled printer. Some of the problems you might encounter when using a non-PostScript printer include poor printing of color separations, inability to produce reversed text (white text on a black background), and slower printing times. The best workaround for this problem is to export your PageMaker file to a PDF (Portable Document Format) file, which you can print at a high quality on a non-PostScript printer. Click the File menu, Export, and Adobe PDF to start this process.

8 Problem: After exporting my PageMaker file to an Acrobat PDF file, the graphics print with jagged edges. The graphics printed smoothly in PageMaker.

Solution: During the conversion process, the software probably compressed the graphics, causing a loss of detail. Click the File menu, Export, and Adobe PDF in PageMaker. Then click the Edit Job Options button followed by the Compression tab. In the Color Images and

Grayscale Images areas, click the drop-down arrow in the Quality text box and select Maximum. If that doesn't seem to help, return to the Compression tab and remove the checkmarks from the Bicubic Downsampling To menu. Both of these actions will increase the size of your PDF file, and possibly by a large amount.

9 Problem: I can't start PageMaker without receiving a language dictionary initialization error.

Solution: Several problems could be causing this error. First, make sure your computer exceeds the minimum system requirements for running PageMaker. Make sure you have plenty of free hard drive space; at least triple that of your largest PageMaker file. Don't run PageMaker from a

compressed partition on your hard drive. You may also try rebooting your computer; PageMaker might not be able to access enough memory to run properly.

If these solutions don't work, a portion of your PageMaker program may be damaged. Exit PageMaker and try renaming the PageMaker defaults file, which is the Pm70.cnf file. You can find this file at C:\PROGRAMFILES\ADOBE\PAGEMAKER 7.0\RSRC\USENGLSH. Finally, under the most extreme circumstances, you might need to remove and reinstall PageMaker. Just remember to back up your personal PageMaker files first.

10 Problem: I've made changes to my PageMaker 6.x user dictionary, but they don't appear in PageMaker 7.0.

Solution: Copy the file containing the user dictionary from the old PageMaker directory to the new PageMaker directory. Open the Pm6 or Pm65 directory (usually located at C:\PROGRAM FILES\ADOBE) and drill down to the Usenglsh folder. Copy the Aldusn.ude file. Then go to \PAGEMAKER 7.0\RSRC\LINGUIST\IPRX\USENGLSH. Paste the Aldusn.ude file.

11 Problem: I inserted an Adobe Illustrator EPS (encapsulated PostScript) graphic in my PageMaker file, but now when I try to print the file, I receive a print time error.

Solution: You need to save the file in a different manner. Try saving the file in Illustrator 7.0x or a later version. If that doesn't work, try saving the file with the fonts as part of the file. With the graphic open in Illustrator, click the File menu and Save As. From the Save As Type text menu, click Illustrator EPS. Give the file a new name and click Save. In the EPS Format window, click Include Document Fonts and click OK. Now when you place the graphic in PageMaker, the file should print properly.

12 Problem: After installing Adobe Photoshop 6.0, I've been receiving invalid page fault error messages whenever I close PageMaker.

Solution: Probably the fastest and best workaround for this problem is to install the Photoshop 6.0.1 update, which is available at <http://www.adobe.com/support/downloads/pswin.htm>.

13 Problem: I'm having problems importing a QuarkXPress document into PageMaker, and I'm receiving a cannot convert document error.

Solution: Try these tips before importing the QuarkXPress document into PageMaker. First, save the file in QuarkXPress version 3.x or newer and then close it before trying to import it into PageMaker. Second, disable QuarkXTensions before converting the document. Finally, make sure you are using the latest version of the QuarkXPress Converter by visiting <http://www.adobe.com/support/downloads/pmwint.htm>.

Get Your PC Ready

If you're trying to run PageMaker on an older PC or on a computer with a shortage of hard drive space, you'll probably receive plenty of error messages and experience software crashes. Make sure your computer can handle PageMaker before trying other troubleshooting methods. [E]

by Kyle Schurman

Adobe InDesign 1.5

A Serious Contender Edges Closer To Its Full Potential

Adobe
everywhere
you look™

Adobe InDesign 1.5



Long known for producing powerhouse graphics and imaging software, Adobe ventured into the desktop publishing market with its acquisition of Aldus PageMaker in the mid-90s. Together with the Apple LaserWriter printer and the Macintosh computer, PageMaker was instrumental in launching the desktop publishing revolution in the mid-80s. Since that time, PageMaker has retained its status as the easiest desktop publishing program to learn, on both the Macintosh and Windows platforms.

But despite the addition of increasingly powerful publishing tools, PageMaker remained in the shadow of rival QuarkXPress, particularly in the eyes of many professional designers. In order to compete effectively, Adobe was faced with the choice of either retooling PageMaker or starting fresh with a new program. Rather than risk ruining a good thing, Adobe repositioned PageMaker as a page layout tool for businesses, catering to users who need professional-caliber tools for

creating publications but don't have an extensive design background. Adobe then created InDesign to handle the needs of professional designers and give Quark a run for its money.

InDesign 1.0 looked promising, and many users believed it had the potential to compete head-on with QuarkXPress, if not leave it in the dust. But despite its potential, InDesign was rushed to market before it was ready, lacking many of the features it needed to be a strong contender. InDesign 1.0 did introduce a few revolutionary tools, especially for typography, which we'll look at in depth below.

What's New In InDesign 1.5.x

In what may have been one of the quickest major updates of all time, Adobe released InDesign 1.5 just six months after 1.0 and later released 1.5.2. InDesign 1.5 addressed many of the shortcomings of version 1.0 and added many new features, including support for text wraparound; text on paths; more extensive path editing controls; new trapping

tools; a customizable toolbox; vertical justification; pencil, eraser, and eyedropper tools; and a customizable keyboard command set. Unfortunately, InDesign still offers poor support for books and other long documents.

The 1.5.2 update fixes a number of bugs from earlier versions and adds built-in support for printing to non-PostScript printers. It also includes numerous printing enhancements and bug fixes to create more reliable integration with prepress and printing workflow, an improved Links palette, and better hyphenation support.

Goodies

Unlike PageMaker, InDesign does not include fonts, templates, clip art, or photos. The CD includes tryout versions of Adobe Illustrator 8.0 and Adobe Photoshop 5.5, as well as brochures for other Adobe products. The CD also includes a PDF (Portable Document Format) version of the User Guide, a User Guide Supplement, a demo Build-Booklet script for simple imposition of PDF pages created by InDesign, and free and demo third-party plug-ins.

Tools & Features

InDesign's focus on professional designers is reflected in an extensive set of design tools.

Tool palettes. Adobe has gone to great lengths to provide a consistent look and feel to its products, and InDesign is no exception. The familiar floating tabbed palettes are here, and most tools work the same as in other Adobe products. Some keyboard shortcuts may be different, but if you're familiar with Photoshop or Illustrator, it won't take you long to get comfortable with InDesign. Tools are organized in logical groups, but you can also drag and drop tab groups to other palettes, break tabbed groups into individual palettes, or rearrange palettes to suit your working style.

Master pages. InDesign provides several ways to set up a document. You can create one page at a time or create one or more master pages. Master pages act as templates, letting you apply consistent layout elements, such as margins, headers, and footers, that you want to appear on every page. You can create a single master page as the basis for all pages or create multiple master pages to be applied to different pages as needed. You can also override all or part of a master page.

Layers. InDesign offers a wide assortment of tools to help you create publications,

including page rules, grids, guidelines, and layers, similar to the multiple layer feature found in Illustrator. Layers function as transparent sheets placed over a page; each layer can contain different types or mixes of objects. You can turn layers on and off to focus on specific elements or tasks, such as proofreading text.

Frames. Frames are boxes or shapes that serve as placeholders for graphics or text. You can create frames from almost any object, including polygons, ellipses, rectangles, and hand-drawn objects. You can also convert placed text to outlines, then use those outlines as frames. Frames let you create your design before the final text or graphics are available. To further help you visualize and create a design, you can fill frames with placeholder text and graphics, to be replaced later with the real text and graphics.

You can thread text frames so that text from one frame flows into the next. In addition to selecting which frames will be threaded, you can control the direction text is inserted into a frame (from the top, bottom, right, or left). You can also anchor one frame to another. If you attach a graphic frame to a selection of text, as you flow or edit text, the image will move with the associated text.

Graphics tools. InDesign includes handy tools for working with and manipulating graphics. One time-saving feature is the ability to work with oversized objects. You can place a large graphic, and InDesign's pasteboard will let the edges of the graphic hang over the edges of your document, letting you scale, crop, resize, rotate, or shear the image to fit.

InDesign also offers multiple ways to view a graphic on-screen. You can display graphics in full resolution (same resolution as the original), optimized resolution (reduced resolution that still maintains high-quality on-screen display), proxy (a low-resolution version that contains enough information to make an image identifiable), or grayed out (a gray box in place of the image) mode, letting you maximize the performance of your system by reducing the display overhead needed to accurately view graphics. You can set each graphic individually, or you can control the display globally. These choices don't affect final output, just on-screen display.

In many respects, working with graphics in InDesign seems more like using a drawing program than a publishing tool. With pens, pencils, erasers, and polygon drawing tools at your disposal, you can create many graphic elements directly within InDesign. Using the Shear,

Scale, or Transform tools, you can resize, skew, or stretch a frame and its contents.

Typography tools. Although version 1.0 was lacking in some feature areas, InDesign has offered some of the best typography tools available right from the beginning, including a Multi-line Composer, Optical Kerning, and Optical Margin Alignment. The Multi-Line Composer is a particularly interesting feature.

Composition tools evaluate text and, if a line ends with a hyphen, decide where the breakpoint should occur and how to adjust word spacing to fit the line. This task was previously handled on a line-by-line basis, which made individual lines look acceptable but often forced bad breaks in subsequent lines. With the Multi-Line Composer, InDesign looks ahead in your document and evaluates how a line break will affect the next set of lines. It then makes adjustments to line breaks, hyphenation, and word spacing by running through multiple alternatives and choosing the one that produces the best text flow. InDesign lets you work in traditional single-line composition mode or multiline composition mode, from document wide down to an individual paragraph basis.

Another new typography tool, Optical Kerning, looks at the shapes of adjacent letters and adjusts the open space between them for the best appearance and fit. Traditional kerning uses hints embedded within a font to decide how specific character pairs should be aligned and is limited to the number of kerning pairs included in a font. Some fonts include dozens or hundreds of kerning pairs, others only a handful. Optical Kerning works independently of kerning information contained within a font, providing greater typographic control. Optical Kerning can also work with character pairs from different typefaces, which is impossible with the kerning hint system.

Optical Margin Alignment allows story-wide hanging punctuation (punctuation and the edges of some letters hang slightly outside margins, making text blocks appear more even).

There are also the expected tools, such as character and paragraph styles, definable horizontal and vertical character scaling, and set attributes for ligatures, case, position, baseline, color, kerning, leading, and overprinting. These attributes are available as part of the style specs, so you can quickly apply them to ranges of text or paragraphs.

Dictionaries. InDesign includes 21 dictionaries, plus the option to install additional

Quick Reference

InDesign 1.5.x

MSRP: \$699

Upgrade from InDesign 1.0: \$99; 1.5: free download or \$20 on CD

Upgrade from PageMaker/PageMaker 6.5 Plus: \$299

Adobe Systems

345 Park Ave.

San Jose, CA 95110

(408) 536-6000

(800) 422-3623

<http://www.adobe.com>

Macintosh System Requirements:

Mac OS 8.5 to 9.1 or Mac OS X (Classic Mode); PowerPC 604 or higher processor (G3 or G4 recommended); 48MB RAM (128MB RAM recommended); 120MB free hard drive space; 24-bit/millions recommended screen display, 800 x 600 monitor resolution; CD-ROM, PostScript Level 2 or higher printer.

Windows System Requirements:

Windows 98/2000/NT 4.0 (Service Pack 4 or later installed); 48MB RAM (64MB recommended); 75MB free hard drive space; 800 x 600 monitor resolution, 256-color video card (24-bit or greater recommended); CD-ROM, PostScript Level 2 or higher printer.

Pros:

- The program has some of the best typography tools available, including optical kerning, multiline composition, and optical margins.
- There is tight integration with other Adobe products, offering designers a complete set of powerful graphics and publishing tools.

Cons:

- The program has little support for long documents and books, including generating a table of contents or index.
- It has no story editor for working with text in a word processing environment.

dictionaries if needed. InDesign also includes special dictionaries for controlling hyphenation. You can embed hyphenation dictionaries in a document, ensuring that line endings remain the same when someone views the document on other systems.

Surprising omissions. On the flip side of these revolutionary tools was a surprising lack of some basic tools, particularly for a program designed to compete against QuarkXPress. The omissions were even more surprising because some of the missing tools and features, such as the Story Editor, are available in PageMaker. The Story Editor displays the text of a long document in a word processing environment, rather than page layout view. This lets you focus on content rather than appearance, navigate quickly and easily through text without clicking through pages, check spelling, and find and replace text. In addition to lacking a Story Editor, InDesign 1.0 offers poor support for books and other long documents. It can't generate a table of contents, an index, or other common items book producers need.

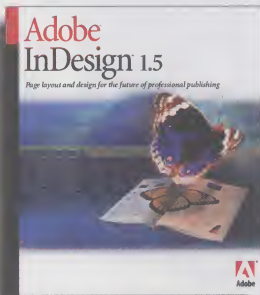
Input & Output

InDesign features many file import and export options.

Importing text and graphics. InDesign can import text from word processing applications, text or table editors, Microsoft Excel, or from any application that can save in text-only or ASCII (American Standard Code for Information Interchange) format. InDesign can also import a wide range of graphics file types, including native Adobe Photoshop and Illustrator files and BMP (bitmap), EPS (encapsulated PostScript), GIF (Graphics Interchange Format), JPEG (Joint Photographic Experts Group), PDF, PNG (Portable Network Graphic), TIFF (Tagged Image File Format), PICT (Picture, a file format developed by Apple), WMF (Windows Metafile Format), DCS (Desktop Color Separations), PCX (a paint format originally developed by ZSOFT), and Scitex CT (Scitex Continuous Tone) files.

Converting Files. You can open PageMaker 6.5 Plus and QuarkXPress 3.3 to 4.04 files directly in InDesign. Third-party plug-ins may provide additional support for converting documents created by other programs. The Macintosh and Windows versions of InDesign offer the same features, so exchanging files across platforms is a snap.

Outputting Files. InDesign features a wide range of choices for outputting and exporting documents. You can export selected pages from your document, as well as the complete document. InDesign's Export tool lets you create a copy of your design in EPS, PDF, HTML (Hypertext Markup Language), and Prepress File formats. You can also create standard PostScript files using Print dialog box options.



Adobe created InDesign to handle the needs of professional designers and give Quark a run for its money.

InDesign includes a wide range of controls for exporting to PDF, including the ability to set the compression for bit-mapped images; select the pages to output; and specify whether crop marks, color bars, and bleed and registration marks should be included. Security settings let you specify whether others can print or change the file or extract the text or graphics. The only current drawback is lack of support for embedded links. You can, however, use Adobe Acrobat to add navigation links to your finished document.

Exporting to HTML lets you specify the page range, background images or colors, how graphics will be handled, and where to store the images embedded in your document. You can export to EPS if you want to import your document into Photoshop or Illustrator, although these programs can also import PDF files. InDesign doesn't currently export to e-book (electronic book) format.

Most users will either print documents locally on a PostScript printer or send them

to a service bureau. (Service bureaus produce high-resolution output of files on paper or film, which is then used by commercial printers to produce brochures, catalogs, and other printed documents.) InDesign provides plenty of tools to make either output process as easy as possible. If you are sending your document to a service bureau, you can use the built-in Preflight tool to ensure that all required files, fonts, and images are present,

as well as provide information about specified printing inks and which pages contain which fonts. Preflighting a document helps ensure that problems are found early in the process, rather than when a job is ready to go to press.

Once the preflight process is finished, you can Package your design and send it off. Packaging takes all of the files needed to output your job and stores them in one folder. Packaging also provides the option to embed fonts within the design and copy linked graphics from your design into the Package folder. The Package process generates a report that includes instructions and information for the printer, including a list of all fonts, linked text, linked graphics, ink colors, and your printer settings.

The Bottom Line

InDesign 1.0 offered designers new typographic tools at the expense of a few bugs and a number of missing features. With the release of versions 1.5 and 1.5.2, many bugs have been addressed, and some missing features have been added, including most of the core tools designers use on a daily basis. Unfortunately, InDesign is still missing a few important features, including a story editor and long document tools. To be fair, you can add these missing pieces by using third-party plug-ins, but these are added cost options that we feel should be standard in a professional design product.

Still, with the improvements in the current version, including the new trapping tool, better object alignment, vertical justification, text on paths, and bug fixes, InDesign is ready to be considered a serious contender. If InDesign adds better support for long documents, we may see a knockdown, drag-out fight for control of the publishing software market. **[E]**

by Tom Nelson and Mary O'Connor

Plug-ins: InDesign

Programs That Let You Do More

Adobe everywhere you look™
 Adobe InDesign 1.5



When you buy a new software program, the list of tasks you can accomplish with it seems endless. Before long, however, you will probably find yourself wishing your program had a few more capabilities. Enter the plug-in. Instead of buying a whole new application to tackle your new task list, you can simply buy or download a little plug-in that will take care of your needs. Plug-ins are essentially small software programs that add features to a larger program.

Adobe InDesign is a comprehensive desktop publishing program, but it can still benefit from plug-ins that increase its usefulness. In fact, some plug-ins, called required plug-ins, are automatically installed when you install InDesign. These plug-ins are required for InDesign to run; some examples include Print, Gradient Fill, and Text Editor. Other plug-ins are optional; they provide features in a wide range of types, such as Graphics, Layout, and Text. Some examples of these optional plug-ins include Printer Styles, Links Panel, and Text Color Panel. Check the Required and Plug-ins folder in your main InDesign folder to find these basic plug-ins.

Find & Install

When you install a plug-in, one of two things will happen: Either the installer will place the plug-in in the appropriate folder for you, or you'll have to drag it there yourself. (Follow any installation instructions that came with the plug-in.) Once installed, you don't have to specially launch most plug-ins; they will appear as additional options in menus, dialog boxes, and palettes; you can use them by making the right selections from these sources.

Get information about plug-ins already installed on your computer by pressing the CTRL key while choosing About InDesign from the Help menu. You can also inspect and customize sets of plug-ins using the Configure Plug-ins command from the Help menu.

All of the following plug-ins are available in demo versions that you can download from their respective Web sites. Many also appear in the Goodies folder of the InDesign installation CD; we've added a note to the plug-in description when this is the case. In addition, all of the plug-ins here work with the Windows OS (operating system), and most of them work with the Mac platform, as well.

Cropster

Looking for a simple way to produce multi-folded brochures or newsletters? Cropster (\$99) lets you set crop marks for bleed, trim, folds, and page gutters. You can choose to insert date and time, the document name, a logo, and other information into pages. Cropster supports measurement arrows for ease in proofreading.

<http://www.gluon.com>

InBooklet

With InBooklet (\$50), you can easily convert reader spreads (the spreads you see on-screen) to printer spreads (the spreads as they will appear in print). Allowing full control over margins, gaps, bleed, creep, and more, this is a great solution for anyone looking for finer control and preview options in the printing process. You can find a demo for InBooklet on the InDesign installation CD.

<http://www.alap.com/products/inbooklet.html>

InData

InData (\$300) lets you apply formatting to large amounts of information (both text and graphics). This is a real time-saving tool for those who do a lot of repetitive publishing tasks. You can find a demo for InData on the InDesign installation CD.

<http://www.emsoftware.com>

InModify

InModify (free) lets users edit frames, text, pictures, lines, text wrap, and more, all from one dialog box. The controls within the dialog box will vary depending on what panel you choose. For example, on the Picture panel, you can do such things as set picture origin and size and rotate or flip it. You can find a free copy of InModify on the InDesign installation CD.

<http://www.alap.com/products/inmodify.html>

InPrint

With the InPrint (\$50) plug-in, users can select portions of an InDesign page to print or save (this plug-in supports a number of formats, including JPEG [Joint Photographic Experts Group], PDF [Portable Document Format], and HTML [Hypertext Markup Language]). The Print dialog box gives you a preview of the selection, where you can change the origin point or the selection's width and height. This plug-in is valuable for anyone

looking for more control over the printing process. You can find a demo on the InDesign installation CD.

<http://www.alap.com/products/print.html>

ItemMarks

ALAP's ItemMarks (\$50) gives users three panels to control crops, marks, and placements for objects and pages. The Crops Panel lets you easily control trim, bleed, and safety. The Marks Panel includes controls for press marks, plate tags, and mark specifications. The Placement Panel lets you control the position of marks as they will appear on the page.

<http://www.alap.com/products/itemmarks.html>



With the InPrint plug-in, you can select and edit certain parts of a page before saving or printing them.

MadeToPrint

MadeToPrint (\$349) will help agencies, editorial offices, and anyone in the prepress industry. With MadeToPrint, users can create and save Job Styles and then send them out to different output devices (such as several different printers). Among its many features is the ability to create precise PDF page sizes.

http://www.callasoft.com/mtpe_e.htm

MagForce

The MagForce (free download demo; \$895) plug-in provides a simple way to integrate ad layouts into InDesign. With MagForce, you can import ad data from Excel, Filemaker, and other applications; view and manage ads; and more. Adobe includes a demo of MagForce on the InDesign installation CD.

<http://www.maned.com/maned/external/products/magforce/indesign.html>

NudgeIt

Gain better control over the placement of any item on a page with ALAP's NudgeIt (\$20) plug-in. With NudgeIt, you can "nudge" objects or groups of objects a specific distance in any of eight different directions. You can also change settings to rotate objects either clockwise or counterclockwise.

<http://www.alap.com/products/nudgeit.html>

PDF CheckUp

With PDF CheckUp, InDesign users have an easy (not to mention free) way to check PDF documents for color usage, font usage (repair or replace missing fonts), resolution, and more. This is a great proofing tool for anyone who prints PDFs or posts them online. Adobe included a copy of PDF CheckUp on the InDesign installation CD.

<http://www.enfocus.com/demos.htm#Anchor-49575>

ShadowCaster

Think of it as the equivalent of a solar plug-in: With ShadowCaster (\$100), you can add soft shadows to text or graphics from within InDesign (as opposed to having to switch to a graphics program to do it). You can silhouette, outline, or ghost the shadows, and you can even choose what color they'll be. ShadowCaster is a breeze to use; just select the object or text you want to add a shadow to, select your preferences from the CreateShadow palette, and press Create. If you find a shadow type you want to use again, save it as a Shadow Style for quick access to it in the future. A demo of ShadowCaster is available on the InDesign installation CD.

http://www.alap.com/products/shdw_indesign.html

Smart Layout

Smart Layout (\$398) lets users optimize layouts by combining such project elements as head, intro, and body into a single page item you can then act on as one unit. This lets you easily resize pages, use grids or borders for the whole article, and much more. You can just as quickly uncombine elements so you can edit them individually. This plug-in can be of great value to those who work with projects, magazines, newspapers, catalogues, and databases that use multiple frames or columns. You can use Smart Layout in conjunction with other WoodWing Software plug-ins, and there is a demo on the InDesign installation CD.

<http://www.woodwing.com/smartlayout.html>

Smart Styles

Smart Styles (\$109) gives users a powerful way to set a number of formatting options. Smart Styles can handle all page item properties, such as fill, colors, stroke, and number of columns. You can set and store styles as Style Libraries, making the use of repetitive formatting much easier and more efficient. If you work with multiple layouts that have comparable formatting, such as magazines, newspapers, and advertisements, Smart Styles could be a valuable addition to your plug-in folder. You will find a demo of Smart Styles on the InDesign installation CD.

<http://www.woodwing.com/smartstyles.html>

Smart XML Export

If you want to put InDesign material online without learning complex languages such as XML (Extensible Markup Language), check out Smart XML Export (\$179). This plug-in can do such things as translate InDesign paragraphs and character styles to XML tags and export content to be used with HTML (Hypertext Markup Language) editors such as Dreamweaver. This plug-in integrates with both Smart Layout and Smart Styles, and you can find a demo on the InDesign installation CD.

<http://www.woodwing.com/sxe/sxe.html>

StarBurst

Starbursts can be a perfect way to draw attention to elements on a page. ALAP's StarBurst (\$30) plug-in gives you eight different types of starbursts. With the StarBurst tool (available from the tool palette), you can configure twists, depth, and more. You can also edit each section of the starburst, giving you complete control over the final look of your starburst. A demo for StarBurst is available on the InDesign installation CD.

<http://www.alap.com/products/starburst.html>

Keep Plugging

Plug-ins can greatly expand InDesign's capabilities, and you can find links to even more of them by visiting Adobe's InDesign Third-Party Plug-ins page at <http://www.adobe.com/products/plugins/indesign/main.html>. [E]

by Rich Gray

Projects: InDesign

Tools To Help Unlock Your Creativity

Adobe
everywhere
you look
Adobe InDesign 1.5

Adobe Systems Incorporated, 3400 Town Center Drive, San Jose, CA 95134

Adobe introduced InDesign with the intention of edging out its impressive competitor QuarkXPress. While InDesign didn't quite manage that coup, it has proved itself a powerful desktop publishing program that's especially appealing to professional designers.

Even if you're not looking for professional-strength capabilities, InDesign is a good choice. It provides home and small-business users an all-in-one solution for their publishing needs. The following projects are just a few of the many desktop publishing tasks you can accomplish with InDesign.

Now Hear This

If you have an important message you want to get out, or if you are trying to advertise your business, one good way is to create a catchy banner or logo. Creating a banner is easy with InDesign; it has all the tools you will need, including

the ability to import graphics, which saves you the hassle of using a different graphics program.

To start this or any project, you'll need to create a new document by selecting New from the File menu. The New Document dialog box offers a number of different options for setting up your new blank document. In our example, we only needed a single page, so we went with the default "1" in the Number Of Pages box. For Page Size, Letter is fine (we're really only looking for enough room to create the banner), and the default settings are fine for everything else. Click OK to proceed.

Once you have the blank page set up, it's time to import any graphics you want to include in your banner. Select Place from the File menu, and browse to the picture you want to use. Because InDesign

does not come with its own clip art, you'll have to find or create your own image to use. (We chose an image from our hard drive.) The image won't automatically appear in your project; you'll have to click and drag the image box to the appropriate size and location. To scale the image to a size that will work for your project, drag an edge or corner of the bounding box around the picture with the Selection tool while pressing the CTRL key. Pressing the CTRL and SHIFT keys while dragging will preserve the image's proportions, while just using the Selection tool without pressing any keys will let you narrow in on a small portion of the image (crop it).

Add text. When the image is the correct size, it's time to add the text you want to include in your banner. Click the Type tool and click and drag to create your text frame. You can determine such characteristics as the font type and size using the Character palette. To change how the text will appear in relation to the frame, make your choices from the Paragraph palette. For our banner, we selected Trebuchet MS set at Bold Italic in 30-point font (all available on the Character palette) for the "Singer's Dairy" text and Verdana 14-point font for the rest of the text. We set the first part, "From Our Farm To Your Freezer!" to Bold Italic. Finally, align the text in the frame to the center by highlighting it and clicking the Align Center button on the Paragraph palette.

To add a little background color to your text frame, select it and click the Fill Box. Then select a color from the Swatches or Color palette. You can use the same method for coloring text by first selecting the text itself instead of the frame.

Before saving the banner, make sure you group the image and text together so they form one unit. Grouping objects is a great way to work with several objects as



The banner is easy to make; it contains only a graphic and a text box.

one, such as when you have a number of different graphic elements that have to stay proportional to one another. To group the picture and text, click the Selection tool, select both (hold down the

SHIFT key and click each one), and choose Group from the Objects menu.

Save the banner. Once you have things the way you want, be sure to save the document so you don't lose all your hard work. One way to do so is obvious: select Save As from the File menu, give your banner document a name, and click the Save button. If you ever want to use the banner in another document, you can just copy it from its original location to the new document.

However, there's a better way to save something you'll be using over again. If you know you'll be using your banner in many future documents, save it to an object library. This will let you store it to a palette and then easily insert it into documents whenever you want. To do this, first create a new object library by choosing Libraries from the Window menu and choosing New from the submenu. Save the library as a document file when it prompts you, and then it will appear as a new palette to the program. Now add your completed banner to the library by dragging and dropping it to the palette. You can toggle the library on and off by selecting Show or Hide (followed by the library name) under the Window, Libraries menu.

Put Your Design Online

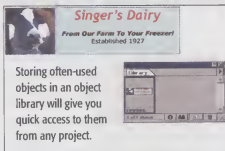
If you want to convey a message, a banner is useful, but it's not nearly as effective as a Web page. This project isn't nearly as difficult as you might think. We'll show you how.

Bullets and text. To get things started, open a blank document. We'll use the default settings in the New Document dialog box as we did when we created the banner, so all you really have to do is click OK. In this example, we're going to make the banner from the first project a part of the Web page. Drag the banner into the new document from the document or library palette where you saved it and position it at the top of the Web page document.

With the banner in position, you're ready to turn your attention to the rest of the page. We used a short "bulleted items" list to highlight some of the primary points of our example business. To create this list, first select what



Using the Pencil and Path Type tools, you can type text on a path of any shape.



images you want to use for the bullets. We copied a star from the ID_01 file that comes with InDesign; just locate the file in the LEARNING ADOBE INDESIGN\TOUR folder, then copy and paste it three times into your document. Manually drag the stars to where you want them on the page, select the Type tool, and drag out a box next to each star to create text frames.

In one of the bullet text positions, we decided to go with a text-on-path effect, a nice bit of graphic manipulation you can do with just a little effort. First select

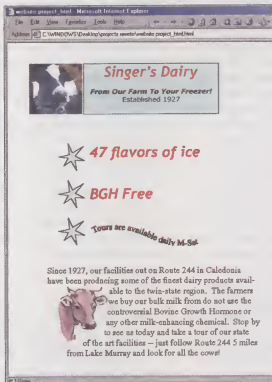
the Pencil tool from the Toolbox and draw the shape you want the text to take. Then select the Path Type tool from the toolbox (select and hold down the Type tool until the pop-out menu displays the Path Type tool). Position the pointer over the path until a plus (+) sign appears and then click the path to start typing.

Once you are done typing, hide the path by selecting it with the Direct Selection tool and setting the weight to zero in the Stroke palette. (Open this palette by choosing Stroke from the Window menu.) If you would like to move the text along the path line or move the start or end point of the text along the line, use the Direct Selection tool to click the center or start/end brackets and drag to reposition them.

Adjust alignment. Now that the star, bullet text, and bullet text effects are all set, align the objects so they look good on the page. Open the Align palette from the Window menu, select all the items you want to align, and choose the alignment option you want. Once the objects are aligned, you can treat them as one by grouping them. If you want to keep others from editing your work, choose Lock Position from the Object menu. This will also lock the object in place within the document.

Wrap text. To finish off the Web page, add a paragraph of text explaining the purpose of the Web page and a relevant graphic. To give your Web page a more professional look, you can wrap this text around the graphic. InDesign gives you several choices when it comes to how text will flow around graphics on the page.

First type or import the text and then choose Text Wrap from the Object menu to open the Text Wrap palette. Use the Selection tool to select the text frame you want to wrap and then click a choice on the Text Wrap palette for the text shape you want. We went with the Wrap Around Object Shape option. Once you've chosen a type of wrap, select wrap offset values from the boxes at the bottom of the Text Wrap palette. These four values will determine how close the wrap is to the edge of the frame.



Our finished Web page example is simple but informative.

InDesign really shines when it comes to the creation of longer projects such as magazine layouts and newsletters.

Now import the graphic you want into your document and drag it into place in the text frame. The text should part and make room for the graphic. If you chose the Wrap Around Object Shape option, use the Add Anchor Point tool to add anchor points around the image frame. Then choose the Direct Selection tool to edit the boundary, allowing the text to more closely "hug" the image. Once this is done, it's time to consider your color choices.

Choose colors for the Web. Because people use different browsers and operating systems to access the Internet, colors won't always appear the same to each person who views your Web page. One way around this

is to use "Web-safe" colors, a collection of 216 colors that look the same regardless of what equipment a person uses to view them. To add Web-safe colors to your Swatch palette (essentially like your own personal box of crayons where you can store and easily access specific colors), open the Window menu and select Swatch Libraries, then choose Web. Double-click any of the colors present here (or choose Add To Swatch from the menu) to add the color to your Swatch palette.

Because you have no idea if colors in imported graphics are Web safe, it is probably a good idea to convert any colors you can in your imported graphics (such as the

color of the stars or the background of the banner text frame). Select the graphic or text frame in which the imported color appears (you'll have to Ungroup the banner to click the text frame), click the Fill Box, and select a Web-safe color from your Swatches palette.

Export to HTML. All that remains now is to export your document to HTML (Hypertext Markup Language). Many attributes will be exported over to HTML with no problems, although some, such as tracking, kerning, and paragraph rules, will not. Note that InDesign will add navigation links between pages, but you'll have to add hypertext links yourself in an HTML editor.

To export to HTML, choose Export from the File menu, enter a file name and location, and choose HTML from the Save As Type box. Click Save, and the Export, HTML dialog box will open with options in the areas of Graphics, Layout, and more. We left all the options here at their default settings. Click OK, and InDesign will save the document.

Get The Word Out

InDesign really shines when it comes to the creation of longer projects such as magazine layouts and newsletters. We've chosen a short newsletter project to demonstrate some of the more advanced things you can do with InDesign.

Because we want our newsletter to be two pages, we typed 2 in the Number Of Pages box in the New Document dialog box. We also typed 2 in the Number box in the Columns section. We left everything else at its default setting. Don't worry about being locked into this right from the start; you can easily add a new page by selecting the Create New Page button from the bottom of the Pages palette, and you can add or subtract columns by selecting the page you want to change columns for (on the Pages palette) and choosing

InDesign Shortcuts

With few exceptions, you can perform just about any task within InDesign without even touching the mouse. InDesign makes excellent use of shortcuts; its Shortcuts Editor lets you easily view shortcuts, generate a list of all shortcuts, edit or create new shortcuts, and more.

InDesign ships with two shortcut sets: a default set for InDesign, and a QuarkXPress 4.0 set. You can use the InDesign shortcut set with the Quick Reference Card that comes with the program for easy access to the most commonly used shortcuts. The QuarkXPress 4.0 set will be useful to anyone who uses QuarkXPress and is used

to the workings of that program. You can easily switch between these sets by opening the Edit Shortcuts dialog box from the Edit menu and choosing a set from the Set menu.

While you can't edit the InDesign or QuarkXPress shortcut sets, you can use them as a base for your own set, which you can edit to your heart's content. To create a new set, click the New Set button in the Edit Shortcuts dialog box, type a name for the set, and select a shortcut set to base it on. To view individual shortcuts, make a selection from the Product Area drop-down list on the Edit Shortcuts dialog box, then click an action in the Commands box. This will

display the shortcut for the action in the Current Shortcuts box. You can change this shortcut by placing your cursor in the Press New Shortcut box and pressing the keys to which you want to assign the shortcut. Upon pressing the keys, InDesign will enter the combination in the Press New Shortcut box. If the keys you select are already assigned to another shortcut, InDesign will tell you, and you'll have the option of replacing the combination with your own.

To view or print a text file containing all shortcuts in a set, select the set in the Edit Shortcuts dialog box and click the Show Set button. ▲

Margins And Columns from the Layout menu. Under Columns, type a new number of columns under Number and click OK.

Add content. We'll start the page as we did the Web page project: by pulling our banner from the library onto the page. Next, create text boxes for the text of your newsletter. Now you're ready to type or paste in the text. If you end up with more text than will fit in a given frame, you will see a little red plus (+) sign in the lower right corner of the frame. To flow this text into the next column, click the Selection tool and click the plus (+) sign (called the out point). When the cursor changes, position it in the next frame and click. The text will now flow from one frame to the next.

Make it interesting. Once your text is in place, use some design tricks to kick it up a notch. To add a drop cap (those large letters or words that you've probably seen at the beginning of articles or chapters), position the cursor in the paragraph where you want to create the drop cap, open the Paragraph palette (select Transform from the Window menu), and enter a number in the Drop Cap Number Of Lines box (in the bottom left corner). This will determine how many lines down the cap will drop (we went with two). In the Drop Cap One Or More Characters box, enter the number of characters long you want the drop cap to be. Because we just wanted the one letter, we chose one.

Another way to make a selection of text stand out and to help highlight central points or facts within an article is to make it into a pull quote. To create a pull quote, you'll first have to create a text frame and position it where you want the pull quote to be on the page. Now add a border to the Pull Quote frame by selecting it and clicking the Stroke tool from the toolbox. Then, just type in the quote. We chose to center it by clicking within the frame and then

choosing the Align Center button from the Paragraph palette.

Saving options. Once your newsletter is done and ready to be distributed, there are a number of different formats to which you can save it, depending on


and location for the file, then click Save. This opens the Export PDF dialog box, which gives you a number of options for Security, Compression, and more. We left everything in this dialog box at the default settings, but you can make changes according to your needs. Click Export to create the PDF file. You can now distribute your newsletter over the Internet, or through e-mail or hard copy.

Save as template. The chances are good you'll want to use the format for this newsletter in future newsletters. The best way to do this is to save it as a template. Open a copy of your saved newsletter and strip it of any current

information, saving only those items in the newsletter that will be recurrent. Next, choose Save As from the File

menu, select a location and version name, and choose InDesign Template from the Save As Type menu. To open your template in the future, select Open from the File menu, find and select the template, and make sure the Normal option in the Open dialog box is selected.

More Resources

These are just a few of the many things you can do with InDesign. In addition to the excellent user guide that comes with the program, you'll find a wealth of other tips and helpful information by visiting the Adobe InDesign Web site at <http://www.adobe.com/products/indesign/main.html>. 

by Rich Gray



Pull quotes are a great way to draw attention to a central point or interesting fact within an article.

how you want to distribute it. One of the most versatile ways is to save it as a PDF (Portable Document Format) file. When you save a document in this format, it retains its original formatting no matter what, so you can be sure your newsletter recipients will see the newsletter as you intended. All your target audience needs to view a PDF file is the free Adobe Acrobat Reader.

To export a file to the PDF format, select Export from the File menu. From the Save As Type drop-down menu, choose Adobe PDF and select a file name

Another way to make a selection of text stand out and to help highlight central points or facts within an article is to make it into a pull quote.

Troubleshooting: InDesign

Simple Solutions To Your Design Delays



The Adobe InDesign software gives users plenty of opportunities to unleash their creativity. Hopefully they don't unleash some creative language when they encounter problems with the program, though. Adobe says users can solve many problems they might encounter when using InDesign 1.5 by upgrading to InDesign 1.5.2, which is available for free to InDesign 1.5 users through the Adobe Web site at <http://www.adobe.com/support/downloads/main.html>. Users can fix some other InDesign problems by downloading the latest plug-in versions for the software. If these suggestions don't fix your problems, we'll try to solve them with the following tips.

1 Problem: While installing InDesign 1.5, the installation program crashed. Now I can't install the software.

Solution: You need to delete any files installed before the crash occurred and restart the installation from scratch. From your hard drive's directory, click the Program Files

directory and then the Adobe subdirectory. If an InDesign 1.5 directory exists, drag it to the Recycle Bin and empty the Recycle Bin. Then reboot your computer and restart the installation program.

2 Problem: I tried installing the InDesign 1.5.2 update over my InDesign 1.5 version, but I received an error message during installation.

Solution: Several potential problems could be causing such error messages, but one of

these two solutions should fix the problem.

First, you can't upgrade to InDesign 1.5.2 if you're using a trial version of InDesign 1.5. You'll have to purchase InDesign 1.5 before trying to install the update. Second, if you've renamed or moved any InDesign 1.5 program files, you'll need to restore them to their original settings before installing the InDesign 1.5.2 update. You might have to reinstall InDesign 1.5 to return to the original settings before trying to install the update.

One final note: Before installing the update or reinstalling InDesign 1.5, be sure to make backup copies of your personal InDesign documents.

3 Problem: After installing InDesign and Acrobat Reader in Windows NT 4, I can't run InDesign, and I receive several error messages.

Solution: You can't install both InDesign and Acrobat Reader without restarting Windows NT in between installing the two programs. Acrobat Reader's installation

program will try to overwrite a DLL (dynamic-link library) file InDesign needs with an older version. You'll need to uninstall both programs. Then install InDesign, restart Windows NT, and install Acrobat Reader.

4 Problem: I can't run InDesign; I'm receiving an ordinal not found error.

Solution: This error occurs when you have some common Adobe files installed in the same directory. This problem, which is rare, could occur when you already have Adobe Illustrator installed and then try to install InDesign, for example, because both programs sometimes try to install some common files in the same directories. To fix the problem, you'll have to uninstall both programs. Then reinstall them; taking care to make sure you don't accept the default directory installation for the programs, instead naming unique directories for both programs.

5 Problem: I created a document in InDesign 1.0 before installing InDesign 1.5.2 on my computer, but now I can't open the document in InDesign 1.0.

Solution: Once you install InDesign 1.5.2 on a computer, all InDesign documents are converted to the new version. You then can't open the documents in InDesign 1.0, because the older version can't read InDesign 1.5.2 documents. Your only option is to click the File menu and the Open From Within InDesign 1.0 command (which is only available when InDesign 1.0 is installed). Then highlight the document you want to open and click the Open button. However, you're better served to delete InDesign 1.0 and use InDesign 1.5.2 exclusively.

6 Problem: I receive several error messages when trying to open certain InDesign files I created earlier.

Solution: Many potential problems could cause these error messages. First, open InDesign, click the File menu, and choose Open to find the file rather than double-clicking it in My Computer. Second, move the file to your local hard drive rather than trying to open it through a removable media source or through a network. Third, make sure you're using the latest version of InDesign; you can't open documents created in 1.5.x through InDesign 1.0. Fourth, you might be able to

open a copy of the file. Open InDesign, click the File menu, and choose Open. Click the Copy radio button in the Open A File dialog box and highlight the document in question. Then click the Open button. Fifth, try rebooting the computer to free up as much memory as possible for InDesign to use. Finally, make sure you have plenty of free hard drive space; InDesign needs about three times as much free drive space as the size of the document you're trying to open.

7 Problem: I exported an InDesign file as a PDF (Portable Document File) file into Adobe Acrobat, but the text doesn't display correctly and I receive an embedded font error or a font substitution error.

Solution: You may need to re-export the PDF file from InDesign with all subset fonts included. To perform this task, open the document in InDesign. Click the File menu and choose Export. From the Save As Type drop-down menu, click Adobe PDF. Click the Save button, and InDesign will open the Export PDF dialog box. In the Subset Fonts Below text box, type 100 and click Export.

8 Problem: I've exported a file from InDesign as a PDF file, but some objects in the file flip vertically or cause an object not found error when I'm trying to edit the file in Adobe Acrobat or Adobe Photoshop.

Solution: You need to upgrade from InDesign 1.5 to InDesign 1.5.2. After you install the update, try exporting the InDesign document again.

9 Problem: I exported an InDesign file into PDF, but when I later try to print it, I receive an offending command error.

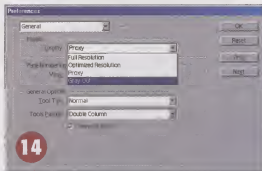
Solution: This problem occurs when the file contains placed PDF graphics. You'll need to reopen the PDF graphics and save them in another format, such as EPS (encapsulated PostScript). Then place the graphics in the InDesign file and export it as a PDF file again. In some instances, upgrading from InDesign 1.5 to InDesign 1.5.2, as we discussed earlier, might fix this problem.

10 Problem: I created a file in Illustrator and imported it into InDesign. However, a graphic I created in the original

document doesn't appear or print correctly from InDesign.

Solution: InDesign probably didn't correctly import the graphic, especially if it contained gradient mesh. Try returning to the original graphic and saving it as an EPS graphic. Then import the file into InDesign again.

If the graphic now appears OK in InDesign but still doesn't print correctly, you



If InDesign is redrawing graphics slowly, try setting the software's display options to Gray Out or Proxy.

might need to save the entire file as an EPS file. From Illustrator with the file open, click the File menu and choose Save As. From the Save As Type drop-down menu, choose Illustrator EPS and click Save. If needed, set the PostScript menu to Level 2.

11 Problem: When using InDesign's Find command to search through a text string, the software says it can't find a match even though I know the text exists in the document.

Solution: You're probably searching for a text string displayed in an expert font or a symbol font the software can't search through, such as Zapf Dingbats. You can try searching for the font instead of a particular character string. Click the Edit menu and choose Find/Change. Click the triangle to the right of the Find What text box and select Any Character. Click the More button followed by the Format button. Click the Style Options drop-down arrow and select Basic Character Formats. Then click the font containing the text string. Finally, click OK and Find Next to locate the font. You might have to click the Find Next button a few times to reach the text string.

12 Problem: The text in my InDesign document won't hyphenate correctly.

Solution: If you have special characters in your text containing diacritical marks, InDesign might not be able to handle the hyphenation properly. You can insert hyphens manually in the document by using the text tool to insert the cursor at the location where you want the hyphen. Then right-click the cursor point and choose Insert Special Character and Discretionary Hyphen from the pop-up menus. In some instances, upgrading from InDesign 1.5 to InDesign 1.5.2, as we discussed earlier, might fix this problem, too.

13 Problem: I've inserted a text block from Microsoft Word in my InDesign document, but my paragraph-spacing formatting isn't correct.


Solution: InDesign can't maintain paragraph spacing from a Word document when you insert text with more than one point size. You can reset the paragraph spacing from within InDesign, though, by highlighting the text in question with the Text tool, clicking the Window menu, and choosing Transform. Then click the Paragraph tab.

14 Problem: InDesign seems to be redrawing images in the document extremely slowly.

Solution: You may want to set InDesign's display options at low resolution to increase the speed with which the program redraws images. Click the Edit menu and choose Preferences, General. In the Images section, choose Proxy or Gray Out from the Display drop-down menu to redraw images at a low resolution.

You also might want to disable color management to improve the speed of redrawing graphics. Click the Edit menu and choose Color Settings, Document Color Settings. Remove the checkmark from Enable Color Management.

Deal With Delays

Even if you're not feverishly working against a deadline, problems that delay your publishing projects are frustrating. Use these tips to deal with them quickly and be on your way again. 

by Kyle Schurman

QuarkXPress 4.1

The Reigning Champ Works On A Sequel

QuarkXPress has been the industry standard in publishing since shortly after it was introduced in 1987, when it wrested the title of desktop champion away from Aldus PageMaker. QuarkXPress won a loyal following of professional designers because its design tools provided more freedom, including hands-on control of many tool settings. It also offered advanced features for its time, including proportional scaling of text and the ability to save pages in EPS (encapsulated PostScript) format. QuarkXPress was based on a now familiar design metaphor: the use of text and picture boxes to represent content to be added later.

QuarkXPress is known for more than tools and features. It's also known for long gestation periods between new versions, which can be a death knell for a product. QuarkXPress owes much to third parties developing and releasing QuarkXTensions (or plug-ins: a programming language that lets other companies, end users, and Quark itself add new functionality to QuarkXPress) to keep users happy while they wait for an updated version of QuarkXPress.

We'll look at QuarkXPress 4.1, which was first announced on Dec. 1, 1999, and is still the shipping version. We'll also look briefly at QuarkXPress 5.0, which was announced in February 2000. When we went to press, it was still in beta testing.

What's New In QuarkXPress 4.1

QuarkXPress 4.1 adds a few new features and addresses some of the bugs and instability of earlier versions. With the addition of two new XTensions, PDF Filter and HTML Export, Quark makes a somewhat tentative move toward positioning QuarkXPress for use outside the print environment.

The PDF Filter XTension saves a page or range of pages as a PDF (Portable Document Format) file. PDF files are increasingly

replacing print versions of publications, including software manuals and product brochures. The PDF Filter will also import a PDF file and place it within a picture box.

The HTML Export XTension lets you select a range of text or an entire story (a group of linked text boxes) and export it as formatted HTML (Hypertext Markup Language) text. You can specify how font sizes



in your document will map to HTML attributes and whether fonts or font colors in your document should be used in the exported HTML file. You can also use the HTML Export XTension to import HTML text into QuarkXPress.

The new QuarkLink feature uses your Internet connection to communicate directly with Quark and XTensions developers. You can configure QuarkLink to send you customized news and information, e-mail Quark's customer service or technical support departments, or access the QuarkTech KnowledgeBase and Quark online support forums.

A new Scissors tool can "cut" picture boxes, text boxes, text paths, and lines. When you cut a text box, it changes to a text path; any associated text will flow onto the new text path. When you cut a picture box, it

turns into a Bezier line (a curved line defined by mathematical formulas). Any content within the picture box will be lost. When you cut a text path, it turns into two linked text paths. Unfortunately, the Scissors tool has no Undo function.

The DejaVu XTension offers customized default folders and a list of recently opened documents. DejaVu adds a hierarchical menu item to the File, Open menu. If you prefer, you can add it as a list at the bottom of the File menu. DejaVu also designates default folders for opening or saving documents and target folders for retrieving text or pictures.

Super Step and Repeat builds on the Step and Repeat XTension included in previous versions. With Super Step and Repeat, you can duplicate items and space them out along a horizontal and vertical offset, as well as add transform functions such as scaling, skewing, and rotation.

In addition to new features, Quark has enhanced some existing features in QuarkXPress 4.1, including the ability to print composite RGB (red-green-blue) files to color

PostScript printers.

Tools & Features

With the exception of a few new features, QuarkXPress 4.1 doesn't include any obvious changes that affect how a user interacts with the program. Before we look at the new features, let's see how the upgrade affects day-to-day use.

Tool palettes. The standard tool palettes and floating palettes are still available. The Tool Palette includes pop-up menus to keep it at a manageable size. When a tool has more than one function associated with it, you can access the additional functions by clicking and dragging to the right. For example, of the seven types of text boxes, only one is visible on the Tool Palette. Clicking and dragging the current Text Box tool to the right displays all available Text Box types.

You can hide or display Quark's palettes using the View menu, a versatile system that arranges the palettes you need in the way that suits you best. The only faults we find with the palettes are their sheer numbers, which can quickly overwhelm your work area. The palettes are also quite dated, which gives little, if any, indication as to how you should use them.

Text and picture boxes. QuarkXPress 4.1 uses frames or boxes as placeholders for text or graphics. Once the basic design is complete, you can flow text into the text boxes and place photos or other images in the picture boxes. Therefore, you can create a template and reuse designs on a regular basis, a handy tool for repetitive publications, such as newsletters, business cards, or brochures.

Master Pages. To make the basic design process easier, QuarkXPress features a wide range of helpful tools, including guidelines, grids, rulers, and other common design aids. You can use the Master Page feature to set up design, image, or text elements you want to appear on multiple pages. QuarkXPress supports multiple master pages, letting you set up individual master pages for facing pages, different sections, inserts, and coupons.

Type tools. Typographic control is at the heart of any design program. If the text doesn't look good, your design won't look good. With support for both character and paragraph style sheets, you can quickly format text across your document with ease and precision.

When it's time to fit the final text into your design, QuarkXPress offers horizontal and vertical scaling (the width of characters), kerning (the space between characters), tracking (the space between words), and baseline shift (the ability to move individual characters above or below the baseline without affecting leading, the space between lines).

Text is not limited to text boxes. Text can follow the shape and curve of a line, or you can convert characters to a box and have text run around the converted characters. Lines, text boxes, and picture boxes can take many shapes, each of which is created using Bezier paths, giving you a great deal of control over how a finished object will look. Instead of an object having just a few edit points that you drag around to change the object's shape, Bezier paths can have an edit point wherever you need one. And you're not limited to dragging edit points around. You can also apply Bezier math to create elegant and smooth curves in your path. No need to know how Bezier math formulas work; just drag handles on the path, and QuarkXPress does the work for you.

Graphics. You'll usually add graphics by placing them within picture boxes. But you can also use the Line and Orthogonal tools to create simple graphics directly within a document.

The ability to manipulate graphics is limited to creating a negative image, controlling

halftone (a pattern of black and white dots that simulates shades of gray), flipping an image on its vertical or horizontal axis, or clipping an image to the picture box. You must use an external graphics program for the majority of image editing, including scaling and cropping.

Input & Output

QuarkXPress features many file import and export options.

Importing text and graphics. QuarkXPress can import text from any word

processor that supports RTF (rich text format) files. It can also read text from Microsoft Word 6.0, 7.0, and 8.0 (also known as Word 95, Word 97, and Word 98). You can copy text via the clipboard from most applications, as well as drag and drop text from other applications. Using the HTML Export XTension, you can also import HTML text.

QuarkXPress can work with most Macintosh and Windows graphics formats, including EPS (encapsulated PostScript),

Coming Soon: QuarkXPress 5.0

Users can expect QuarkXPress 5.0 to be a more successful venture into multimedia publishing, offering the ability to design a publication once and use it in many different formats, including print, HTML (Hypertext Markup Language), XML (Extensible Markup Language), and other electronic formats.

QuarkXPress 5.0 will let you design documents and export them as HTML, with support for image maps, rollovers, meta tags, forms, background images, hyperlinks, and CSS (Cascading Style Sheets).

The HTML code generated will be based on tables, requiring viewers to be using version 4.0 or later of a Web browser. This a good choice between 100% compatibility and the need to control how a Web page will look, which is difficult to do with earlier browsers.

Moving beyond simple HTML generation, QuarkXPress 5.0 will include

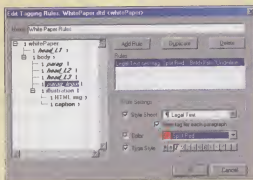
a free copy of *avenue.quark*, an XTension that can generate XML content, as well as import XML content into QuarkXPress. XML gives designers more control and flexibility than HTML.

QuarkXPress 5.0 also promises to correct a failing in its creation of PDF

multiple outputs. Of particular interest is a tool that will let you use layers throughout a document, making it easier to set attributes for different media and organize information. (Layers act like transparent sheets over a page; each layer can contain different information.)

It's too early to say whether QuarkXPress 5.0 will be able to deliver what it promises, but it's likely because some of the tools are already available in the form of separate products or XTensions. Combining all of these tools under one roof could result in an

unbeatable publishing program. The real question will be how well these tools are integrated. If the integration is seamless, and it doesn't feel as though you're working in multiple applications, Quark should easily retain its title as the publishing champ, in both print and electronic media. ▲



QuarkXPress 5.0 will include a free copy of *avenue.quark*, an XTension that can generate XML (Extensible Markup Language) content, as well as import XML content into QuarkXPress.

(Portable Document Format) files. The current PDF XTension lets you export to PDF but requires Adobe Acrobat Distiller. QuarkXPress 5.0 won't require Acrobat Distiller; instead, it will let you create PDF files directly, including support for embedded hyperlinks.

A collection of new tools will simplify designing for

TIFF (Tagged Image File Format), PCD (PhotoCD), JPEG (Joint Photographic Experts Group), PICT (Macintosh Picture), BMP (Windows bitmap), PCX (PC Paintbrush), GIF (Graphic Interchange Format), Scitex CT (Scitex Continuous Tone), and WMF (Windows Metafile Format).

Converting files. You can import PDF and some other file formats using third-party XTensions.

Outputting files. The new HTML and PDF XTensions represent Quark's push into electronic media. However, even making allowances for their being new, they appear to be more of a demonstration than a serious attempt to provide usable tools.

The HTML XTension can only save text from a document; it can't save graphics, backgrounds, or embedded links. It also only works with one story at a time. If you have

and lets you use lists or indexes within your document to generate hyperlinks.

On the print side, QuarkXPress justifies its long leadership in publishing through extensive prepress support, whether a document will be printed in-house or sent to a service bureau (a company that produces high-resolution output of files on paper or film, which is then used by a commercial printer to produce brochures, newsletters, catalogs, and other printed products) or a commercial printer. You can print to PostScript printers or files or save pages in EPS format. You can also color separate, trap, and screen files; generate files for spot and process colors; specify RGB graphics to be separated into either Hi Fidelity color or process color; or print CMYK (Cyan Magenta Yellow Black) separations. In addition, you can have your service bureau handle all of this for you and use QuarkXPress to assemble the files needed for output.

The Bottom Line

QuarkXPress is still the leader in print design, although Adobe InDesign is quickly closing in, but it's showing its age when it comes to repurposing content for electronic media. If this is a major requirement for you, hold out for QuarkXPress 5.0, which is expected to offer major improvements in this area, or take a look at InDesign.

If you're primarily a print designer, QuarkXPress 4.1 provides some of the best tools you'll ever need, including a rich collection of typography tools, the use of Bezier paths for creating text and picture objects, and multiple master pages. Direct

graphic manipulation tools are weak but serviceable, because most designers have their favorite image editing tools available at their workstations.

QuarkXTensions is one of the best systems around for adding functionality to a core program. With a large selection of XTensions available from Quark and third-party developers, you can easily add the functions you need. The ability to customize QuarkXPress is one of the many reasons professional designers use it extensively. **B**

by Tom Nelson and Mary O'Connor

Quick Reference

QuarkExpress 4.1

MSRP: \$869

Free upgrade for registered users of QuarkXPress 4.0 or later. (At the time of this writing, all current upgrade offers are scheduled to end August 31, 2001. Check the Quark Web site for any new upgrade offers.)

Quark

1800 Grant St.
Denver, CO 80203
(800) 676-4575
<http://www.quark.com>

Macintosh System Requirements:

Mac OS 8.1 or later; PowerPC 604 or higher processor (G3 or G4 recommended); 8MB RAM (32MB RAM recommended), 12MB free hard drive space; 24-bit/millions recommended screen display, 800 x 600 monitor resolution or better; CD-ROM, PostScript Level 2 or higher printer.

Optional: Adobe Type Manager for accurate rendering of Type 1 fonts on-screen.

Windows System Requirements:

Windows 95/98/NT4/2000; 12MB RAM (32MB recommended); 12MB free hard drive space; 800 x 600 monitor resolution, 256-color video card (24-bit or greater recommended); CD-ROM, PostScript Level 2 or higher printer.

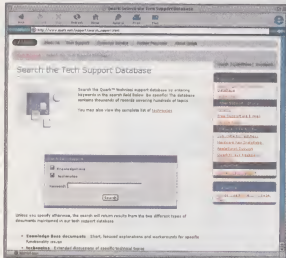
Optional: Adobe Type Manager to view and print Type 1 fonts; IPX-compatible network.

Pros:

- QuarkXPress has Bezier drawing tools for creating graphics, text boxes, and picture boxes. You can also use these tools with the Merge command to create additional shapes.
- You can put text on paths and link multiple paths to let text flow to multiple objects.
- Typographic and layout tools are top notch.

Cons:

- Users must perform most graphics editing with third-party graphics programs.
- Quark's first attempt at converting QuarkXPress content to other media (HTML [Hypertext Markup Language] and PDF [Portable Document Format]) is poor.
- Of the top three desktop publishing programs, QuarkXPress has the steepest learning curve.



QuarkLink, a new feature in QuarkXPress 4.1, uses your Internet connection to contact customer service or tech support or access the QuarkTech KnowledgeBase and Quark online support forums.

more than one story in a document, be prepared to use the HTML XTension over and over. We don't see much advantage to this method over simply saving the original text files and importing them into your favorite HTML editor.

The PDF XTension is also disappointing. To use it, you need Adobe Acrobat Distiller. If you have Acrobat Distiller, you don't need this XTension. Just save your document as a PostScript file and run it through Acrobat Distiller yourself, with more control than this XTension provides. The PDF XTension's one redeeming feature is it automates the process

Plug-ins: QuarkXPress

Discover Ways To Put This Program In The Express Lane



When QuarkXPress was developed, the criteria for including features were that each function should appeal to a broad base of users. Each subsequent edition, including QuarkXPress 4.1 and the forthcoming QuarkXPress 5.0, has maintained this approach. For QuarkXPress users, that's a good thing. If the QuarkXPress included every conceivable enhancement, the program would bloat to a huge, memory-sucking program with too many menus and submenus to master.

Certain users, however, may want QuarkXPress to perform specific functions that aren't included in the basic QuarkXPress program. That's where QuarkXTensions come in. These are downloadable plug-ins that expand QuarkXPress' already formidable capabilities. While Quark itself develops some free plug-ins, most XTensions are made by third-party developers who have come to Quark with an idea.

Those developers who have passed muster with Quark have access to QuarkXPress' source code. The result is a rich library of

applications that work seamlessly with the main program, becoming part of it, in effect. For example, in many cases, these XTensions install themselves as additional options in QuarkXPress' menus.

Quark classifies XTensions according to the stage of the production process in which users are likely to use them. These classifications include Database/Asset Management, Editorial, Fonts/Typography, Graphics Design, Internet, (Miscellaneous) Utilities, Prepress/Printing, and Production. Here we list a selection of useful QuarkXPress XTensions by category, from the design stage to the printing stage. They are all compatible with both the Windows and Mac operating system. (For XTensions for the Mac operating system, see the note at the end of this article.)

Graphics/Design

FullColor XT

For inexperienced QuarkXPress users, the program's Measurements palette can be an

intimidating feature, a menu-shift quicksand where mistakes and misjudgments compound themselves. FullColor XT (\$59.99) can help create order from chaos. Some of its capabilities include mixing, duplicating, replacing, and deleting colors and blends with one click.

<http://www.badiast.com/fullcolor.html>

Multi Style II

In almost any type of document creation, shifting back and forth between different typefaces or fonts can be a time-consuming and error-prone process. This is not only true in basic word processing, but also in sophisticated document creation tasks you may wind up tackling with QuarkXPress. Multi Style II (\$99) is a welcome solution. This XTension offers automatic formatting of plain text through typographic variations, automatic multistyle of specific words or phrases, and the application of different styles in one single action.

<http://www.techno-design.com/ms2xt.htm>

Photoshop Import

Have you used Adobe Photoshop to edit photographs? Do you want to use these photographs on a page you are creating with QuarkXPress? Moving these images into QuarkXPress is easy with Photoshop Import (\$99). The tool supports several layers, clipping paths, and most of the color models Photoshop uses.

<http://www.techno-design.com/psixt.htm>

QX-Tools 4.0

With QX-Tools 4.0 (\$149.95), you can import any printable Object file into QuarkXPress. Some types of files you can import include tables you have created in Word, Excel charts, PowerPoint presentations, and many PDF (Portable Document Format) files. You can resize these files and assign them to different layers within a page you are creating. If you have second thoughts, you can easily undo your decisions.

<http://www.extensis.com/qxtools>

Resize XT

Adjusting the size of page elements can be a cumbersome process. Resize XT (\$99) is a solution that greatly simplifies the procedure. Upon installation, Resize XT adds a Resize tool to QuarkXPress' tool palette. The Resize tool makes it possible to drag groups of page elements to their new size, while offering a

box where you can specify the percentage to which its content should be scaled.

<http://www.visionedge.com/htmlxtensions/resizext.html>

Visual Capture

Exporting a screen grab into QuarkXPress can require multiple steps. Visual Capture (\$99.95) speeds the process by using a Hotkey to automatically place screen shots and captions into a QuarkXPress document. It can handle most graphic file formats and resolution settings.

http://www.advfirmware.com/vcap_home.htm

XPressImage

Experienced QuarkXPress users know that converting whole documents or individual document pages created in QuarkXPress to major graphics formats is a key step in the creation process. XPressImage (\$169) makes this process more efficient. It offers a dialog box with Export format choices such as TIFF, JPEG (Joint Photographic Experts Group), GIF (Graphics Interchange Format) and PICT. XPressImage comes with its own plug-in: the Adobe Photoshop XPI Rasterizer. This product helps you maximize your image processing power, letting you create Web-ready graphics from images in hard-to-convert formats such as PDF bit maps and Vector Art.

<http://www.gluon.com/xpressimage4.htm>

Editorial

HNJ Engine

Wouldn't it be great if you could seamlessly unite the text-authoring and editing functions of Microsoft Word with the layout capabilities of QuarkXPress? HNJ Engine (\$895) essentially unites these two programs. To use the HNJ Engine XTension, you first create a document in Word. Once you've edited your copy and looked at it in Word's Print Layout view (under the View menu), you can import Word text into multiple QuarkXPress text boxes and then, if necessary, export the revised text back to Microsoft Word document form. The process is similar for importing and exporting art files between Word and QuarkXPress.

<http://www.napsys.com/hnjeng.html>

SpellBound XT

Using the spellchecker that comes with your word processing program is a reassuring way to avoid common errors. But if you often work with documents that include a lot of specific terminology, such as a travel brochure, a medical information pamphlet, or a mutual fund prospectus, that typo-indicating red squiggle will appear even on correctly spelled words simply because they are not in the program's dictionary. Odds are good that you will waste precious time manually "teaching" your word processing program new words. Similarly, if you have misspelled a technical term, your word processing utility likely won't catch your error.

While QuarkXPress has a built-in spellchecker, it doesn't do well with technical terms and jargon. Once you have imported your text into QuarkXPress, SpellBound XT (\$200) acts like a fail-safe spell-check mechanism. It offers several specialized dictionaries, including Medical, Legal, Technical, Dental, Pharmaceutical, Wall Street Words, and Geographical. If you are unsure that you've spelled a word correctly, SpellBound XT's SuspectWord find-and-replace function can



PM2Q is a plug-in that makes it easy for users working in PageMaker to convert their documents to QuarkXPress.

flag your misspelled term, search for the similarly spelled but correct word, and make the change in the document.

<http://www.compucense.net/SpellBound.htm>

Fonts/Typography

Type Tricks

Maybe you are designing a sales brochure, and you want to add eye-catching pricing information. Here's where Type Tricks can help. When you install this XTension, it adds a typographic utility to QuarkXPress that lets you design and insert price and fraction designs of your own choosing into the document you are creating. Unlike most of the other XTensions we've mentioned, Type Tricks is free and is made by Quark, rather than a third-party vendor.

http://www.quark.com/products/xtensions/xtcatalog/xt_list.cfm?xtid=2057

Miscellaneous Utilities

PM2Q

Adobe PageMaker is a desktop publishing program competitive with QuarkXPress. If you are working with a PageMaker source document, there's an easy, one-click way to convert it into QuarkXPress. PM2Q (\$142; the name stands for PageMaker to Quark) handles all the

XTensions Coming Soon

The eagerly anticipated QuarkXPress 5.0 will have hundreds of XTensions; some that are now under consideration will have some powerful capabilities. Many will enhance the new version's formidable array of XML-friendly functions. XML is short for Extensible Markup Language, a standard that helps developers more accurately describe the type and look of documents intended for posting on the Web.

XML works well with QuarkXTensions. For example, some XTensions will be able to extract content

based on the formatting styles used in the existing document and convert each content element tagged with a specific style in QuarkXPress to a corresponding XML element. Quark had not yet announced the list of new 5.0 XTensions partners when we went to press, but using any of several XTensions now under development, users will easily be able to generate XML content from their QuarkXPress documents and then post it to the Web. Users with newer browsers will be able to open the content you have created as an XML

document. You will also be able to convert your content to an HTML format for site visitors using older browsers such as Internet Explorer and Netscape 4.

Besides Web documents, Quark expects that many of the XTensions will be centered around the enhanced features in tables and layers functionality in QuarkXPress 5.0.

The release date for QuarkXPress 5.0 has not yet been released. For updates, check the Quark site at http://www.quark.com/products/xtensions/xt_xpress.html. ▲

elements within the original PageMaker document, including text attributes, colors, fonts, images, style sheets, and positions.

<http://www.markzware.com/product/pm2q.html>

Internet

Quark HTML Text Export

The purpose of this free QuarkXPress XTension is simple, and it's defined by its name. You can use Quark HTML Text Export to convert an entire document, or sections of a document, from QuarkXPress to HTML-formatted text. With this conversion made, you will be able to use your HTML authoring tool to open the document and prepare it for posting on the Web.

http://www.quark.com/products/extensions/xtcatalog/xt_list.cfm?XTID=2045

XPRESS XML

As you might glean from the product's title, XPress XML (\$50) is a utility that lets you export and import text between QuarkXPress and any standard XML (Extensible Markup Language) application, such as an editor or browser. Better yet, the Save Text As function preserves the style and formatting information you have specified for your document. As Quark rolls out the XML-friendly QuarkXPress 5 this fall, look for utilities such as XPress XML to be mission-critical XTensions for developers.

<http://www.atttd.com/xml/products.html>

Production

DejaVu

While working with a document, have you ever needed to go back to another document you created a few hours ago? Do you often find yourself trying to remember what you named the file? The free DejaVu XTension can help. Its primary mission is to provide you with a list of documents you recently opened. Once you've installed DejaVu, you can access this menu from the bottom of QuarkXpress' File menu or as a submenu under the Open command in the File menu.

http://www.quark.com/products/extensions/xtcatalog/xt_list.cfm?XTID=2058

PDF Filter

Here's a no-fret, free way to create a PDF document out of a QuarkXPress file. PDF

Filter does this by saving your pages in the PostScript format and then using Adobe Acrobat Distiller to generate the PDF file. With PDF Filter, you can also import specific pages from a PDF document into a QuarkXPress picture box.

http://www.quark.com/products/extensions/xtcatalog/xt_list.cfm?XTID=2054

ProScale

You may be creating a multipage document but are looking for a way to vary the layout in each page. Depending on the subject matter and message of each page, perhaps you want to toggle back and forth between a one-column, two-column, or even a business-card-sized layout. ProScale's (\$95) Fit To pop-up menu is a solution that lets you scale individual or groups of pages to more than a dozen preformatted templates. The Scale From option even lets you select sections within the document itself. The

looking for problems in text, pictures, and colors. When QC finds an error, it indicates as much in a list. When you click the error notation, QC takes you to the place in the document where the error occurs. You can correct the problem manually or preprogram QC to make the corrections automatically.

<http://www.gluon.com/QC4.htm>

Prepress/Printing

ColorBreaker

Here's a prepress nightmare: a printed document is supposed to have three light-blue boxes, and one red box. Instead, it has been erroneously prepared with three light-blue boxes and one dark-blue box. Worse yet, the font style or size in one of the boxes is a little different from the others. When colors or typefaces are improperly or inconsistently applied to a printed page, the layout looks sloppy. ColorBreaker (\$149) can help by providing tags that can ensure that your document is set up correctly.

<http://www.gluon.com/colorbreaker4.htm>

You Want More, You Say?

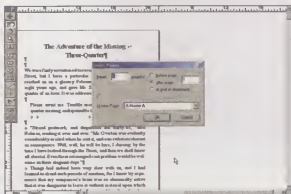
To find more free Quark XTensions, visit the XTensions Catalog on the Quark Web site at <http://www.quark.com/products/extensions/xtcatalog/index.cfm?type=xtension>. Use the search box to look for the XTension you want; a results page will list the XTensions that match your search. Click the link next to the XTension you are interested in to launch a

page that will provide a direct link to the developer's site. From there you can purchase or download the XTension.

After you download an XTension, save it to the XTension folder in your QuarkXPress program folder on your hard drive. Then the next time you launch QuarkXPress, the XTension will automatically integrate into your application, as if it was always a part of QuarkXPress. [E]

by Russell Shaw

(NOTE: To see several XTensions for the Mac, see this article online at <http://www.smartcomputing.com/guide/g0910xtensions>.)



Use the XPress XML XTension to export and import text between QuarkXPress and any standard XML (Extensible Markup Language) application, such as an editor or browser.

Advanced Settings menu is even more powerful, allowing scaling of specific objects, such as lines or picture boxes, within the page you are creating.

<http://www.gluon.com/proscale5.htm>

QC

No matter how diligently you proofread a document, some glitches can get through. Even the most literate books and prettiest brochures can have such "duh" errors as unclosed quotes, spaces before commas, and punctuation outside the quote when it should be inside. Working with inter-related Category and Check For menus, QC (\$149) acts as a document inspector,

Projects: QuarkXPress

Get To Work With Ease



QuarkXPress
QUARK

D IY (Do It Yourself) desktop publishing does for printed materials what the typewriter did for the printed word: It acts as a tool to help individuals produce refined documents quickly, easily, and cheaply. Don't fuss with your word processing program's stubborn demands for layout, and unless you're a gifted artist, don't even try to prepare documents by hand. Desktop publishing programs such as QuarkXPress 4.1 will have your projects looking slick lickety-split.

While QuarkXPress is the print industry standard for layout (in fact, it's the software used to lay out the magazine you're holding in your hands), it has many applications for the home and small-business user, as well. If you're making a flyer, it's a snap. Personalize cards and invitations by making them at home. And users who are a bit more comfortable with the program can

publish a newsletter that keeps their favorite organization or small group in the loop. These are just a few of the many tasks of which QuarkXPress is capable, but the types of documents you can produce and how they'll look are limited only by your imagination.

Click & Go

Even if you've never used QuarkXPress before, it's easy to make a simple one-page document. When using QuarkXPress or any other design tool, it's a good idea to sketch what the finished product should look like. Try to do this before you go to the computer and make a list of elements you want to be sure the document contains. For the following project, a flyer for a garage sale, you should have a rough idea of the information the document should contain, such as the date, place, and time. Keep in mind that

some data, such as the name of the event, should carry greater emphasis than, say, a list of items that will be available for sale. After you've accomplished this critical first step, it's time to go to the computer.

Flying High

For your garage sale flyer, you'll want to make a document that both catches attention and conveys information quickly. To start, select New Document from the File menu. Make sure the options in the New Document dialog box are set to a regular US Letter size (8.5 inches wide x 11 inches high is the default) and that your document is vertically-oriented (Portrait). A .5-inch margin (the program's default) all around is fine for this assignment. Because this will only be a one-page document, make sure the Facing Pages checkbox is unchecked. You want to start this new document with an Automatic Text Box, so toggle that selection to make sure a check mark appears in the checkbox. And because this page will have only one column, the default gutter width of 0.167 will suffice.

After clicking OK, you'll see a blank page. Under the View menu, make sure the Snap To Guides option has a check mark next to it and that your new document is set to the default setting of showing the ruler and the guides (meaning the opposite options, Hide Ruler and Hide Guides, are available from the View menu). These tools will help you place objects in QuarkXPress with more precision and will be helpful in every project outlined below.

Create the flyer title. Your first item of business is to create a text box centered near the top. From the Tools Palette that pops up automatically on the top left side of your document, choose the fifth button down; it looks like a rectangle with the letter A inside. This is the Rectangle Text Box Tool, and it will create a new text window. With the button hot, draw a text box starting at the 2-inch mark of your ruler whose width goes to the 6-inch mark on the horizontal ruler and around 3 inches tall on your vertical ruler. These needn't be exact; the Snap To Guides selection will fit your windows automatically to the grid.

You should now be looking at your first text object window, a piece of real estate that's ready to receive your words. Go back to the left-hand Tools Palette and select the



If you followed our example exactly, your completed garage sale flyer should look something like this.

Content Tool, the one second from the top that looks like a hand. Click this button and then click the text box you just created. You should now see a blinking cursor inside the text box, and here you should type garage sale in all caps. Adding text at this prompt functions the same as it would in a word processing program.

To alter the size and look of this text, highlight the words and go to the Style menu. From the Font submenu, select Arial or another font you prefer that's still easy to read. Also under Style, with the text still highlighted, choose the 60-point font from the Size submenu. Center the alignment by choosing Centered from the Alignment submenu, which is also in the Style menu.

Add pertinent information. Back at the Tools Palette, choose the top button, the Item Tool that's shaped like a cross. Click the Garage Sale text box and then choose Duplicate from the Item menu. This will create another text box with exactly the same dimensions and content, and it will appear just on top of the original box. Drag the second box below your first text box, leaving about half an inch between them.

Highlight the text inside the second box and delete it because this box will contain your flyer's next most pertinent information: the garage sale's event date and time. Once you've inserted your text, you'll notice that the 60-point font we chose earlier won't work with this box (as evidenced by the red

square that appears in the bottom right corner), so you'll need to make it smaller. Highlight the text, go back to the Style menu, and choose another font size from the Size submenu. In this case, a 36-point font works well.

Now make another duplicate of the text box and position it a half inch below the second. Highlight and delete the text. Click the Content Tool (the one that looks like a small hand) on the Tools Palette and enter your garage sale's location information here.

Dress it up. Now you have all of your pertinent information in place, so it's time to spruce up the document. The beauty of Quark is that you're not stuck with this linear arrangement of three text boxes. Under the View menu, select Fit In Window. This will give you a bird's eye view of what the entire page looks like, sort of like the Print Preview tool in a word processing program. If you don't like what you see, you can move the boxes you've created around into a more favorable design. Do this by clicking the Item Tool, which looks like a small cross at the top of the Tools Palette, and then clicking and dragging your boxes to your position of choice.

From here, add some miscellaneous information, such as one small text box in the top left corner detailing the merchandise for sale, and a duplicate text box in the lower right corner with more data and contact information. To get the Garage Sale box to stand out the most, you could make the text bold and shadowed by highlighting it and choosing those options from the Type Style submenu in the Style menu. You could also make the text boxes around

the miscellaneous information round for visual variation. This is easy to do: After selecting the Item Tool from the Tools Palette, click the text box and then choose the shape you want the text box to take from the Shape submenu under the Item menu.

For a final splash, color the text in a few of the text boxes. Click the Content Tool (the tiny hand), and then highlight the text. Click the Style menu and make a selection from the Color submenu. Now click the background of the document, outside all the text boxes you created. Remember that the entire page is one big text box, so adding a colorful border is a snap. From the Item menu, select Frame. Add an 8-point, solid red border to the entire document. Your garage sale flyer is now done.

You're Invited

You are now cordially invited to create your own cards and invitations using Quark. Not only is this a more cost-effective option than the corner drug store, it's also a way to personalize your feelings and events. Start a new document that's US Letter-sized but horizontally orientated (Landscape). Add two columns and 1-inch margins all around for a more elegant look, and uncheck the Facing Pages and Automatic Text Box checkboxes.

Inside the invitation. Let's do the inside of the invitation first. Of course, this can be as ornate or as simple as you like; our example of an invitation to an engagement party will be quite elegant. Start by creating text boxes, one for each column. The left side says simply, Celebrate with Us.... but you can use some tricks on the font to spruce it

Save Time With Shortcuts

As you gain familiarity with QuarkXPress, you'll be able to move more quickly through the program by using its palettes (on-screen tools menus) instead of relying on drop-down menus. Keypad commands will also shorten your work time. Here's a list of some of the more common commands you can use to move between tasks with agility.

	PC	Mac
Show/Hide Guides	F7	F7
Show/Hide Ruler	CTRL-R	Command-R
Show/Hide Tools Palette	F8	F8
Fit in Window	CTRL-0	Command-0
Close	CTRL-F4	CTRL-W
Undo	CTRL-Z	Command-Z

up. We chose a 60-point Park Avenue font size and style.

To create more space between the letters, add a 150% horizontal scale by choosing Horizontal/Vertical Scale from the Style menu and making the appropriate adjustment to the Scale section of the Character Attributes dialog box. You can also lighten the text a bit to make it subtler by changing it in the Shade submenu from the default 100% to only 60%. Finally, center the text by choosing Centered from the Alignment submenu. To further center the text, make sure the text inside the box is still highlighted and then choose Modify from the Item menu and click the Text tab. Then center the vertical alignment by choosing Center from the Type drop-down menu.

For the text in the right column, use the same font for the meat of the invitation, which gives guests such information as the date, time, and place. You'll also want to center the text both vertically and horizontally. To draw the eye to this page and complete the look, use a delicate border. To get it, select Frame from the Item menu and choose the Triple border in black with an 8-point font. Depending on the quality of your printer, you could go with a more ornate border, and if you don't plan to use colored paper, you may also want to give the border a colored fill as a variation. If you want, you can also take advantage of using color gradients on your invitation, but unless you have an excellent-quality printer, this effect can look sloppy. To try out a color background, color the box and play with the blends you'll find in the Box tab of the Modify dialog box under the Item menu.

On the outside. You'll need to tell Quark that you need to add another page for the front and back panels of your invitation. Do this by choosing Show Document from the View menu to make the Document Layout palette appear. Click A-Master A and drag it next to page one.

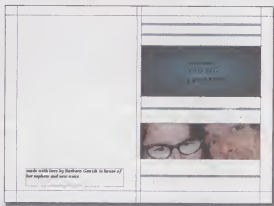
If you'll be printing this yourself, you'll have to tweak it a bit to work with the double-sided paper. But because the document will be folded, the second page of the document contains both the first panel of the

card (the front) and the last panel of the card (the back). In order to print double sided the two are inverted. The first panel of page two will be the back cover of the card, and the second panel of page two will be the front face of the card.

Decorate the two panels as you want. Try using photos and personal images to give your cards a familiar touch. (See the Insert content section below for more information



The font and border we used for the text on the inside of this invitation lend it an air of elegance. However, if you want something less formal, you can change the style and font in a snap.



The two outside panels will be the front and back of the invitation. For printing purposes, they should be positioned like this, even though they may at first seem to be in the wrong order.

on adding pictures to your documents.) And on the back page of the card, don't forget to give yourself some credit for all of your layout and design work. You deserve it! Finally, don't forget to use some thick or better-quality paper stock to give your cards a heavy, sturdy feel.

That's Fit For Print

Now that you've mastered a single-page flyer and a double-sided card, here's how you

can take some of those skills and put them to use toward a multipage document.

To make a four-page newsletter for your birding group, start with a new document that is US Letter-sized, has Portrait orientation, and two columns with the standard gutter width between them. For clarity's sake, make your margins a bit more generous: 1 inch all around. Click the Facing Pages checkbox so you can staple the newsletter together like a book. No automatic text box is necessary.

Create a Master Document. The first thing we're going to do is create a Master Document, which is a shortcut to formatting every page in the document automatically. From the Document Layout menu (open it by choosing Show Document Layout from the View menu), double-click A-Master A. What you're looking at now is the Master Document; any formatting or design changes you make to this page will also appear on every page throughout the document. You can always tell you're in the MD by the small icon that appears in the top-left corner.

Each page in your newsletter has two columns. Because this document uses facing pages, your MD will show you two pages side by side. Create text boxes that fit snugly into each guide in each of the four columns. Then choose a light color for the background by clicking a text box and choosing Modify from the Item menu. Click the Box tab and choose a color you like from the Color drop-down menu. Mix your own if you don't like QuarkXPress' choices. Do this for all four text boxes you created.

Under the Page menu, the Display function will let you toggle between the Master Document and the document you're working on. Choose Document and then refer to the Document Layout menu to add more pages to the document. Page one is already there; to create pages two, three, and four, simply click and drag A-Master A next to page one. Do this two more times for pages three and four. Check to make sure all four pages are there by choosing Thumbnails from the View menu.

Insert content. Add a text box that spreads across the top center of page one for

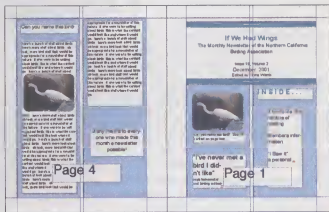
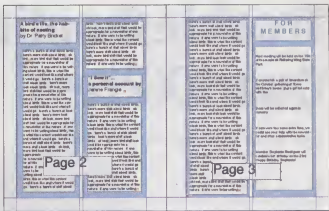
the masthead of the newsletter. This can easily sit on top of the formatting you've done for the Master Document. You can also create teasers for stories inside separate text boxes and add images. To add an image, click one of the buttons on the Tools Palette that has an *X* through it, and then draw in where you want your picture to go, just as you would a text box. Then, under the File menu, select Get Picture to pinpoint which image you want from your hard drive. Quark also allows for handy in-box cropping; after selecting an image, simply click the hand-shaped Content Tool to center only the part of the image you want to show up in the document.

Now you're ready to add the bulk of the content to the newsletter. Make one text box for each title and another for each article. When the story won't fit in a single box, you must link the contents of one text box to another. This is a critical function of Quark; here's how you do it. When you see a red square at the end of a text box, you know you have too much text for a single box. To link it to another text box, click the Linking Tool, which is the second tool from the bottom of the Tools Palette. Then click the overflowing box and then the box you've created to catch the overflow. (In this case, they're right next to each other.) The box that catches the overflow text can be right next to the original box, or it can be on any page throughout the document.

Don't forget to make the relationship between image and text run smoothly. In the midst of a text-heavy page, an image can

liven things up. To get the words to flow around a photo or graphic, simply create an image box and put it on top of your text box. With the image selected, choose Runaround from the Item menu. A one or two point distance between the image and surrounding text is usually good enough for visibility. This function will get the words to flow easily outside the borders of the image.

Print your newsletter. It's best to create all four pages in the order you'd like them to read to keep the content straight in your mind. But when it comes to printing on your home system, you have to play with the pages a bit to get them aligned correctly to print double-sided on double-wide paper. For example, while we created page one first, page four will appear first and to the left of page one, and pages two and three will be next to one another. Think about how the panels related to one another for the greeting card we created earlier. The results here will be somewhat similar. If you're unsure of how



If you want to print your newsletter on both sides of a page and fold it down the middle like a book, you'll have to arrange the pages in a little different order than you might expect, as pictured here.

to arrange your documents for printing, mock up the pages into a puzzle on scrap paper to figure out the order.

Put Your Best Document Forward

Now that you've gotten a taste of QuarkXPress, you can use these skills to build and format other documents, including books and personal diaries; holiday family letters; full reports and single-page documents; and tricky folded materials such as greeting cards, invitations, and brochures. A little tweaking and inventive insight makes you look professional, even if you weren't born with the skills of a designer. [E]

by Karen Solomon

Next Steps With QuarkXPress 5.0

QuarkXPress 4.1 has a lot to offer, but version 5.0 offers users still more muscle for their documents. Quark has made a host of improvements to make the transition of XPress documents to electronic media easy and to flex the product's capabilities beyond print media.

The biggest feather in the cap of QuarkXPress 5.0 is its ability to create HTML (Hypertext Markup Language) documents from anything you create

in Quark, including support for such things as image maps, meta tags, forms, and mouseovers. In addition to creating HTML files, users will also be able to directly export Quark files as PDF (Portable Document Format) files for easier document sharing and instant, stable Web availability. And rather than forcing users to download and install an additional plug-in, 5.0 comes with the ability to work with XML (Extensible

Markup Language) documentation or publish entire documents in XML.

While most people think of Quark as the solution for professional print layout, it's been a little slow on the draw when it comes to new media. The latest version of the software, however, is actively seeking to be a full-service publisher across all media.

Quark has not yet announced when it will release QuarkXPress 5.0; it is currently in the prerelease testing stage. ▲

Troubleshooting: QuarkXPress

Tips To Help Work Out The Kinks

If you use QuarkXPress 4.1 and experience some error messages and annoying problems, you can probably trace most of them to your computer and printing hardware. QuarkXPress documents are typically large, and they tax the resources of your computer and printer. However, you might still encounter some problems with a few other aspects of the program. We'll help you find solutions for your QuarkXPress problems.

1 Problem: I'm having trouble printing one particular QuarkXPress document.

Solution: Try printing the document without graphics by clicking the File menu and choosing Print. Then click the Options tab and change the Output setting to Rough, which will suppress graphics from printing. If the document now prints correctly, you may have a corrupt graphic inside the document. To determine which graphic is corrupt, make a copy of your QuarkXPress file and then remove the graphics one by one before printing (after resetting the Output to Normal) until you identify the graphic that's causing the printing problem. Often times, resaving the graphics in their original programs under new names will fix the corruption problem.

It's also possible you have a corrupted font in the document; you can either substitute a different font or reinstall the font files from the corrupted font.

2 Problem: When I try to print, I sometimes receive a PostScript error.

Solution: In most cases, QuarkXPress will generate a PostScript error when an item in the document is corrupt. Fortunately, QuarkXPress 4.1 has a built-in utility to work around PostScript errors.

After receiving a PostScript error, click the File menu and choose Print. Then click the Options tab and the Quark PostScript Error

Handler checkbox. With this feature activated, your QuarkXPress document will print normally until it encounters a PostScript error. QuarkXPress will then print a page identifying the error, which you can use to identify the offending graphic or font and then remove it. You can also search a technical support Web site or call Quark technical support with the exact error message to try to fix the problem. Both the Quark Web site (<http://www.quark.com>) and the Adobe Web site (<http://www.adobe.com>) have technical support Web pages that help identify and solve PostScript errors. When using Quark PostScript Error Handler, however, you will experience extremely slow printouts.

3 Problem: I suddenly can't print any QuarkXPress files.

Solution: First you should make sure the problem isn't with your printer or print driver by printing other documents in other programs. Then try these troubleshooting techniques.

First, try moving all of the XTension files from the XTension directory into the XTension Disabled directory. Restart

QuarkXPress and try printing again. If printing works this time, one of the XTension files is corrupt. Try placing the files back in the XTension directory one at a time, trying to print after each addition. When you find the corrupt file or files, delete them.

If the problem isn't with the XTension files, try closing QuarkXPress and then removing the XPress Preferences file from the QuarkXPress directory. If you can now print, the XPress Preferences file is probably corrupt. QuarkXPress will reset your XPress Preferences file automatically the first time you run XPress after removing the file, but you'll lose your personalized settings.

4 Problem: I believe I have a damaged QuarkXPress document file. How can I open it?

Solution: Because QuarkXPress files usually require a large amount of storage space they're occasionally subject to corruption, especially on computer systems without a lot of memory.

Try opening the corrupt file in a different version of QuarkXPress. For instance, you could try opening a QuarkXPress 4.1 for Windows file in a QuarkXPress 4.1 for Macintosh program. This sometimes works because the programs sometimes access the files in different manners. You can also try moving the XPress Preferences file out of the QuarkXPress folder. This file can sometimes cause errors in a document. Remember, though, that the XPress Preferences file contains your QuarkXPress customization settings, so you want to delete it only as a last resort. You also can try adding more memory to your system.

5 Problem: I can't export my QuarkXPress document as a PDF (Portable Document Format) file.

Solution: You need a couple of pieces of software to create PDF files out of your QuarkXPress documents.

First, you need Adobe Acrobat Distiller, which performs the PDF conversion. Second, you need the Quark PDF Filter. The PDF Filter is included with QuarkXPress 4.1, but you might want to visit <http://www.quark.com/support/downloads/index.jsp> to make sure you have the latest version of the PDF Filter.



6 Problem: My QuarkXPress documents are occupying a lot more hard drive space than they should.

Solution: You probably have the Auto Backup feature enabled. This feature instructs QuarkXPress to keep a specified number of copies of each QuarkXPress document on the hard drive. This is a handy feature, because it automatically keeps copies of the document from the most recent times you used the Save command. You can then return to an earlier version if you don't like some changes you made. However, each copy of the document is a full copy, meaning it could occupy a lot of hard drive space.

Because this feature is so beneficial, we wouldn't recommend disabling the Auto Backup command. Instead, you'll want to limit the number of copies QuarkXPress saves. Click the Edit menu, Preferences, and Application. Click the Save tab. Place a checkmark in the Auto Backup checkbox to enable this feature. Then tilt QuarkXPress how many copies of the document to save by typing a number in the Keep Revisions text box. Keep the number low (less than five) to preserve hard drive space.

7 Problem: QuarkXPress' Auto Save feature continually interrupts my work, locking me out of my file while it runs.

Solution: While we wouldn't recommend disabling Auto Save because it provides a key insurance policy against program crashes, you can tell QuarkXPress to run the feature less often, which should lessen its interruptions of your work time. Click the Edit menu, Preferences, and Application. Click the Save tab. The Auto Save checkbox should already contain a checkmark. In the Every Minutes text box, increase the number to 10 or more.

8 Problem: I can't run QuarkXPress under Windows 2000.

Solution: Make sure you've upgraded to the latest version of QuarkXPress. If you try to run QuarkXPress 3.x or earlier versions under Windows 2000, you may experience problems. Click the Help menu

and choose About QuarkXPress to see your software's version number.

9 Problem: When sharing a document between computer systems, I sometimes receive an error message telling me QuarkXPress must "reflow" the document using this system's fonts. Then the document's fonts change from what I wanted.

Solution: When you copy a QuarkXPress document to a new computer system, that system needs to have the same font files available as those you used to create the document on the original computer system. If the font files

aren't identical, you'll probably see a reflow error message. QuarkXPress then must try to match the fonts as closely as possible using the font files available on the new computer system.

To avoid reflow error messages, make sure the font files used in the QuarkXPress document are identical on both systems, both in file name and in version number.

It's also possible a font file on the new computer is corrupt. If that's the case, you'll need to reinstall it.

10 Problem: I encounter several font-related errors when moving QuarkXPress files from Macintosh to Windows computers.

Solution: Some Macintosh fonts, such as Chicago and Geneva, aren't available on Windows computers. If you use some of these Mac-only fonts in a document, you might receive an error message when opening the document on a Windows computer. QuarkXPress will usually let you make font substitutions, though.

Another potential problem when moving from Mac to Windows with QuarkXPress documents occurs when using special characters from a particular font. Mac and Windows computers sometimes assign different ASCII (American Standard Code for Information Interchange) values to special characters within a particular font, which could cause the Windows PC to read some special characters incorrectly. You may have to manually change these special

characters once you move the file to the Windows computer.

11 Problem: I need to create continuity by carrying text and design styles from page to page within my document and from document to document, but I don't want to spend a lot of time re-creating the styles each time I need them.

Solution: QuarkXPress' Style Sheets feature should give you the continuity you need. With style sheets, you can make and save personalized changes to the style sheet. You then can use that particular style sheet throughout your current document and in other documents. QuarkXPress will carry your personalized changes inside the style sheet. Using style sheets will save additional time by letting you make one editing change inside the style sheet that will carry through all documents using that style sheet.

12 Problem: I need to create a table of contents for my QuarkXPress document. How do I do that?

Solution: Using the QuarkXPress Lists feature, you can have the program automatically create your table of contents, pulling the chapter titles and proper page numbers from the document. If you later make editing changes to the chapter names or to the page numbers, the Lists feature will automatically update the table of contents to reflect the changes.

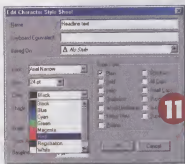
13 Problem: My final printed document will only allow two spot colors, rather than full-color printing. How can I use QuarkXPress to accurately represent these two colors and any mixture of them?

Solution: Just specify the exact spot colors you will use in your document, and QuarkXPress will represent them properly on the screen. You then can use the Multi-Link feature in the program to accurately mix the two colors, using percentages of each. If you find a suitable mixture, you essentially will have a third color to use. You can also mix a single spot color with a shade of black.

Quark's Quirks

Don't let printer or program hassles stand between you and an impressive finished project. With a little help, you can tackle even the most troublesome problems. **GS**

by Kyle Schurman



QuarkXPress' Style Sheets will save you time by helping you remember and store design and text themes.

Desktop Publishing Resources

Take To The Web For Greater Knowledge

Don't fret if you're having problems using your DTP (desktop publishing) software package. Even the most talented desktop publishing experts have creative lapses from time to time, leaving them unable to develop ideas to design even the most basic document. And desktop publishing software packages sometimes stump even the most experienced computer users as they try to complete a technique.

Thanks to the Web, such creative and mental blocks don't have to be project-threatening. Hundreds of Web sites exist that provide detailed information about using DTP software more efficiently or about bringing your printed and Web documents to life with exciting designs. Look through the list of Web sites we've collected here to find answers to nearly any DTP question you might have.

Adobe FrameMaker

Some of the best tutorials for FrameMaker are available through the Adobe site at <http://www.adobe.com/products/framesmaker/main.html>. You'll find message boards and technical support here, too.

FrameMaker Tutorials

Visit this site for several tutorials for FrameMaker 6.0 for Windows. You'll learn basic techniques, from creating your first file to building a book. Tutorials for FrameMaker 5.5.6 are still available at the site, too.

http://www.io.com/~hcxres/doc2/frame_index.html

FrameUsers.com Resource Guide

This page, part of the FrameUsers.com Web site, provides information on several FrameMaker topics. You can see white papers on specific FrameMaker topics, find reference

books, or find add-on tools for the software. Click the folders along the left side of the page to view the various topics.

http://frameusers.com/resource_guide

InFrame Magazine

You'll find tutorials and tips for using FrameMaker at this electronic magazine site. You also can access back issues of the e-zine or you can communicate with other FrameMaker users.

<http://www.inframe-mag.com>

The Idea Store

This site contains a large number of tips and tutorials for FrameMaker, ranging from those for beginners to experts. The site contains some FrameMaker white papers, too, which are available for viewing online or for downloading as a PDF file.

<http://www.theideastore.com>

Adobe PageMaker

The Adobe Web site contains user message boards for PageMaker, technical support options, a gallery, training/events, and product

info at <http://www.adobe.com/products/pagemaker>. For some PageMaker tutorials directly from Adobe, click the Training & Events link followed by the Tutorials link.

About.com

The About.com Web site contains a list of tips you can use to learn about PageMaker. These tips, aimed at beginners, will help you start using the software.

http://desktoppub.about.com/library/howto/bl_htpmkr.htm

PageMaker Automation

Visit this site to see dozens of examples of scripts you can use in PageMaker. Select the sample script on the left side of the window or scroll through all of the available scripts on the right side.

<http://www.oz.net/~vsamarsk/WinEntry.htm>

PageMaker For Desktop Publishers

This site provides news about PageMaker as well as tips and information designed to help you use PageMaker more efficiently. You can find a link to a PageMaker FAQ list, too, as well as some basic information about DTP.

<http://www.makingpages.org/pagemaker>

Adobe Photoshop

Visit the Photoshop product Web page at <http://www.adobe.com/products/photoshop/main.html> to find information and tutorials for the product. Click Training & Events followed by Tutorials to access the tutorials page. The Photoshop Expert Center link leads to another extremely helpful page.

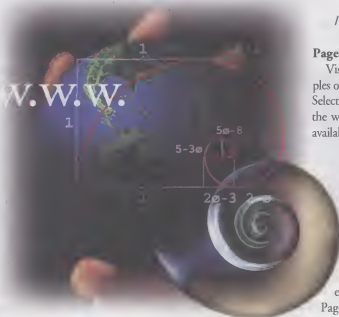
signing.com

The signing.com Web site contains more than a dozen tutorials to help you create interesting effects in Photoshop. The site contains links to plug-ins, too. If you're looking for specific help about a Photoshop feature, you can use this site's message board to ask other site visitors your question.

<http://www.signing.com>

Elated.com

You'll find a list of tutorials for beginners and advanced users at this Web site. You'll



learn how to work with layers (for beginners) and how to create 3-D lighting effects (for advanced users).

<http://www.elated.com/tutorials/graphics/photoshop>

Online-Designs.com

This site contains a variety of handy tutorials for using Photoshop; just click on the arrowhead to the left of the tutorial you want to try. You can use these tutorials to create text special effects or to create icons.

<http://www.online-designs.co.uk/photoshop.htm>

Photoshop 5.5 Tips & Tricks

If you're using a slightly older version of Photoshop, version 5.5, this Web site will give you plenty of information and tips for making the most of your software. You'll find sections of the site devoted to tips, plug-in software, message boards, and free fonts. Best of all, many of the tips should work for Photoshop 6.x, too.

<http://www.geocities.com/SiliconValley/Way/9571>

Photoshop Tutorials

This is one of the most comprehensive sites you'll find for Photoshop information, outside of what's available through the Adobe Web site. The site provides a closer look at dozens of aspects of Photoshop, including a list of nearly 200 tips and tricks you can try. You'll find tips and tutorials here both for Web and print publishing.

<http://user.fundy.net/morris>

[/photoshop.shtml](http://photoshop.shtml)

Photoshop Workshop

The creators of this site have gathered their lists of tips and tutorials from all over the Web, and it's an extremely thorough list. You'll find tips and tutorials divided into several categories as well as a list of the site's Top 10 Photoshop tips.

http://www.rainworld.com/oe_99/forge/ps_tut/index.frame.html

WebDeveloper.com

This site focuses on developing desktop publishing documents for the Web, but many of the Photoshop techniques discussed here will work in print, too. Just click on the

link for the technique you want to try in the middle column.

<http://www.webdeveloper.com/design>

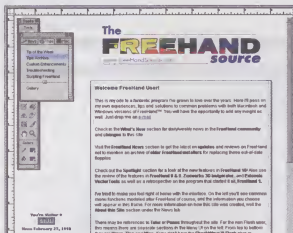
Macromedia FreeHand

Try the FreeHand product World Wide Web page at <http://www.macromedia.com/software/freehand> for basic product information, community, and more. Click the Support And Training link to find additional resources.

FreeHand Professional Tips & Tricks

This page, created by a Russian graphics designer Art Lebedev, provides a variety of tips for using FreeHand, all sorted by topic. You'll also find some handy tips for making FreeHand work with other programs, as well as useful tips and tricks.

<http://www.tema.ru/f/e/c/e/h/a/n/d/>



Try the FreeHand Source Web site for past and present tips and information about the software.

The FreeHand Source

Click the Tips tab along the left side of the screen to see several tips you can use with FreeHand. The site sorts the tips by category, such as tips with graphics. Click the Misc tab for additional information, such as a history of FreeHand and add-on software. You'll also find FreeHand news and information at this site.

<http://www.freehandsource.com>

Microsoft PowerPoint

You can visit the Microsoft Office home page at <http://office.microsoft.com> to find assistance and free tools you can use with PowerPoint. Try the PowerPoint Assistance Center Web page for detailed PowerPoint tutorials that may come in good use to you at

(<http://search.office.microsoft.com/assistance/product.aspx?p=Powerpoint>).

Awesome PowerPoint Backgrounds

When you visit this Web site, you can select among tips, tutorials, and Web links for PowerPoint. You can also buy backgrounds this company has created containing dozens of customized PowerPoint background images.

<http://www.pptbackgrounds.fsnct.co.uk/pptips.htm>

Brainy Betty

You'll find PowerPoint tutorials dealing with graphics, designing presentations, and creating backgrounds at this site. You'll find several tutorials for other Microsoft Office components here, too.

<http://www.brainybetty.com/Tutorials1.htm>

PowerPoint FAQ

Visitors to this Web site will find dozens of questions and answers for common PowerPoint tasks and problems. The tips deal with a variety of PowerPoint versions. The site contains a message board devoted to Power Point as well.

<http://www.bitbetter.com/powerfaq.htm>

PowerPoint Templates

This site, called Graphicsland, contains about three dozen free templates you can use with PowerPoint. You can download all of the templates at once, in a single, compressed 400KB file.

<http://www.graphicsland.com/powerpoint-templates.htm>

Recycled Presentations

If you're stuck for an idea for your PowerPoint presentation, visit this site from Maniactive. You'll be able to download some previously created presentations to help spark your creative side.

<http://www.maniactive.com/powerpoi.htm>

QuarkXPress

Try visiting the QuarkXPress product Web page at <http://www.quark.com/products/xpress> to find tips and information about the software. Select from among the links

along the right side of the page to find tutorials and tips.

Digital Training & Design

You'll find tips at this site for using QuarkXPress, as well as a list of keyboard shortcuts for the software split into categories based on the version of QuarkXPress for which they work. All of the tips are available in PDF format, meaning you can download them and view them at your convenience.

<http://www.digitrain.com/Tips>

The Font Site

Visit this site to find specific tips and information regarding typography in QuarkXPress. The Font Site attempts to highlight some lesser-known features in QuarkXPress dealing with fonts and typography.

<http://www.fontsite.com/Pages/PASG/PASG0298.html>

QuarkXPress Tips & More

This site offers dozens of tips, mostly aimed at beginners. Use the text menu to move between the various topics on the site. Click Keyboard Shortcuts or QuarkXTensions to learn more about using QuarkXPress.

<http://www.rit.edu/~spmswww/frank/qxtips/qxtips.html>

XpressoBar

This site provides a wide-ranging amount of information about QuarkXPress. You'll find unique information on the Web site, including tips on publishing to the Web or on printed material, as well as various links to other Web sites containing QuarkXPress information.

<http://www.xpresso.com>

Miscellaneous

Several other sites deal with general DTP topics or with more than one software product. We'll now discuss those sites.

About.com

The Desktop Publishing area at About.com is extremely useful; the sites provides detailed tips and information on a variety of DTP subjects: this includes plenty of basic information on learning about DTP and on graphic design. You'll find links to some free clip art sites and free template

sites. Just click the directory you want to explore along the left side of the screen and move through the subdirectories until you reach the topic you want. The site also has a collection of sites with tips for several software packages, including FrameMaker, InDesign, PageMaker, PowerPoint, and QuarkXPress.

<http://desktoppub.about.com>

Forum	Topics	Posts	Latest Post
Changes and Enhancements	2	1	04/22/2002 2:48 PM by: Admin
Help	43	200	04/22/2002 10:10 AM by: Admin
InDesign	0	29	04/22/2002 6:55 AM by: Admin
Mac OS X	1	1	04/22/2002 10:10 AM by: Admin
PageMaker	0	23	04/22/2002 10:10 AM by: Admin
PowerPoint	32	05	04/22/2002 10:10 AM by: Admin
QuarkXPress	5	23	04/22/2002 10:10 AM by: Admin

Talk to others; you can connect with other DTP users at the Desktop Publishing.com message boards.

Adobe InDesign

Visit the InDesign Web product page on the Adobe Web site to link to technical support and to message boards. Click the Training & Events link followed by the Tutorials link to try some of Adobe's tutorials for InDesign.

<http://www.adobe.com/products/indesign>

Cascading Style Sheets

Visit this site for a comprehensive listing of CSS (Cascading Style Sheets) information. You'll be able to see an example of coding for each CSS listed on the site in addition to reading some basic information.

<http://www.bloobery.com/indexdot/css/propindex/all.htm>

Desktop Publishing Basics

For those wanting to give DTP a try, try visiting this page on the Internet Brothers Web site. You'll find plenty of basic general information about DTP, including a comprehensive glossary and tips for beginners.

<http://www.internetbrothers.com/desktoppub.htm>

Desktop Publishing Forums

You'll find more than one dozen message boards dealing with DTP software and general DTP issues, including employment, at this site. Just click on the folder for the discussion topic you'd like to view.

<http://desktoppublishing.com/boards>

DTP Zone

The DTP Zone site contains tips for a variety of software packages, including FreeHand, PageMaker, and PhotoShop. Most of the tips are available in specific topics, such as shortcuts or importing files.

<http://www.sev.com.au/dtpzone>

Element K Journals

Through this Web site, you can read online articles for several magazines devoted to providing help with specific DTP software products, such as InDesign, PageMaker, and QuarkXPress. You can find tips for using the software and search through past issues of the magazine (although some past stories are available online only to magazine subscribers). Click the Tips link along the left side of the screen to sign up to have tips for specific DTP software packages delivered to your e-mail address.

<http://www.elementkjournals.com/departments/media.htm>

Graphic Design Resource Center

This site contains a wide variety of information on graphic design and desktop publishing, ranging from images to freelance design jobs. Click the Tips & Tutorials button to find information on improving your design techniques. Some of the resources at this site are only available for a fee.

<http://www.deezin.com>

Helptalk Online

If you're looking for help from other DTP software users, try visiting Helptalk Online. The site sorts the message boards via specific software titles, such as PageMaker, Publisher, and QuarkXPress.

<http://www.helptalk.net/desktoppub>

by Kyle Schurman



XL1

The ultimate Mini DV camcorder.

- Exclusive XL Mount gives Zoom lens options: Extra Wide Angle 3x, 14x (full manual) and 16x with Optical Image Stabilizer™
- 3CCD with pixel shift gives you the highest resolution and sharpest color available
- 16x SuperRange Optical Image Stabilizer™ Lens comes standard
- Accepts EOS EF Super Telephoto camera lenses with optional EF adapter
- Full manual control

GL1

Professional performance in a compact Mini DV.

- 20x Optical Zoom Lens plus 100x Digital Zoom with Optical Image Stabilizer™
- L-series Fluorite Lens used by professional photographers
- 3CCD with pixel shift gives you the highest resolution and the sharpest color available
- Shoot in Movie mode, take pictures in Photo Mode or record 30 frames per second for a cinematic look and internet compatibility.
- Record directly from analog camcorders



optura

More versatility than ever in a Mini DV.

- 12x Optical Zoom Lens plus 48x Digital Zoom with Optical Image Stabilizer™
- Progressive Scan CCD RGB Primary Color Filter
- Shoot in Movie mode, take pictures in Photo Mode or record 30 frames per second for internet compatibility
- Works with select EOS EX Speedlite Flashes
- Record directly from analog camcorders

ELURA 2MC

A soul mate for your computer.

- 10x Optical Zoom Lens plus 40x Digital Zoom with Image Stabilization
- Shoot in Movie mode, take pictures in Photo Mode or record 30 frames per second for internet compatibility.
- MultiMediaCard™ for storing, managing, and easy transfer of still images to a PC
- Only 0.86 pounds
- Record directly from analog camcorders



Shoot first. Edit later.

NEW

ZR30MC

The ZR20, ZR25MC and ZR30MC are perfect companions for making digital home movies.

- Canon 10x Optical Zoom Lens plus 200x Digital Zoom with Image Stabilization
 - Store still images with an MMC or SD Memory Card (ZR25 MC and ZR30 MC only)
- Transmit power to an attachable microphone or video light (ZR30 MC only)
- Record directly from analog camcorders



Each of our digital camcorders has an IEEE 1394 (FireWire™) digital terminal for easy computer connectivity, superior picture clarity you can only get from Canon lenses, an optional Floppy Disk Adapter for capturing stills, and the Mini DV format. Because what you record is just the beginning.

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Canon KNOW HOW™

Free Web Services

In the world we live in today, finding items and services for free is a task in itself. And when you come across that free item, you'll surely find some advantages and disadvantages to its freeness. The obvious advantage is you save a few bucks, the disadvantage is that free usually means there are some sort of strings attached. This isn't necessarily the case, though, as we searched the Internet and found a lot of Web services available at no cost.

Throughout this section, we explore various sites that contain special deals for purchasing cars, finding insurance, or planning trips. We also tell you where you can find the best deals on PC components, as well as give you links to the top online shopping agents.

Numerous services we found, including sites featuring electronic greetings, online coupons and deals, and Web design elements, all offered services for free. Others, though free, had some strings attached. Take for instance the sites featuring online contests. Although many sites we found were free, several contained an annoying amount of pop-up ads that barred us from even getting into the site. Several services, the Internet service provider sites, for example, are a good example of services that once were free, but are now going to fee-based services.

So, even though there aren't a lot of things in life that are free, hop on the World Wide Web and see what you can find. You may surf the Internet for a while, but it will be time well spent if you find a product or service that you don't have to pay for.

105 Specialized Deals Online

Buy A Car, Find A New Home, Plan A Trip & More

109 The Best Deal On PC Components

A Quick Upgrader's Guide

113 Top Online Shopping Agents

Track Down The Items & Prices You're Looking For

115 Shoppers Beware

Tips To A Secure Online Shopping Experience

117 Choose An ISP

Take The Free Way (Almost) To The Information Superhighway

118 E-mail & Instant Messaging Apps

Check Out The Services That Let You Communicate For Free

121 Talk For Free Using Your PC

Explore Your IP Telephony Options

124 Send An Electronic Greeting

Use The Internet To Send E-cards For Any Occasion For Free

125 Get Creative With Free Design Elements

Spruce Up Your Web Site With Animation, Applets, Sounds & More

129 Find Storage Space Online

Share, Back Up & Access Your Files Online Using These Services We Explored

131 Top System Utilities

Make Your System More Efficient With Freeware & Shareware Utilities

137 Online Savings

Know Where To Go For Coupons That Offer Deals On All Kinds Of Goods & Services

139 You've Got To Click To Win

The Amazing Maze Of Free Internet Contests

Attention All Online Shoppers

Learn Where To Find The Best Prices
For The Products You Want



For the avid shopper or bargain hunter, the most important question to ask about the Internet is, "Can I find good deals online?" Luckily for all of us, the answer is an unqualified yes. The Internet has always offered good bargains from small companies looking to compete with larger firms, companies needing to unload surplus merchandise, and individuals hoping to turn their trash into someone else's treasure.

In the wake of the recent collapse of the Internet economy, the gold mine of bargains has become even more spectacular. Large companies are determined to make their Internet investments pay for themselves, sometimes by offering products at pennies over cost, while smaller Internet firms are struggling to generate enough cash to stay in business.

In addition, the vast storehouse of knowledge available on the Internet can help you

find a different type of bargain—the perfect item. With the resources available, you can compare product features, search for items by specific attributes, and obtain information on product reliability.

Some sites, such as Active Buyer's Guide (<http://www.activebuyersguide.com>) and shopping agent DealTime (<http://www.dealtime.com>), have intelligent shopping wizards. These intuitive software products ask you questions about your preferences in a given category or product type. They return an assortment of suitable products within your price range, complete with comparison charts. After reviewing the charts and selecting a particular product, you can begin hunting for the best bargain, knowing you have already made the right choice.

As with any bargain, value is in the eye (or wallet) of the beholder. The Internet offers

good prices, but it has shortcomings, as well. Is it worth saving a few dollars on an item if you have to wait a week for delivery? How much is it worth to give up the convenience of a quick refund in the event of dissatisfaction? If a price is deeply discounted, are you willing to take a chance on an unknown vendor with little track record and no customer support? These are questions only you, the buyer, can answer.

In addition, advertised "sales" do not always represent the best price for an item; a bargain may not be what it seems. Shipping and handling fees can wipe out the benefits of special pricing in a flash. (Some larger stores offer Internet rebates specifically to cover shipping charges plus a few extra dollars as an online bonus.)

When we compared a company's online prices with its bricks-and-mortar (in-store) prices, we found online pricing was better (or at least equal) in nearly every case. Pricing from one online store to the next for the same item, however, varied considerably. For example, we priced digital cameras at CompUSA's retail and online locations, and then compared the pricing to other vendors on the Internet.

The Fuji FinePix 4900, which retailed for \$849 at a CompUSA store, sold for \$799 on CompUSA's Web site. With shipping and handling costing between \$5 (five-day ground delivery) and \$18 (next day delivery), the Internet offered the better bargain. But when we searched for the same camera at DealTime, we found the item priced anywhere between \$593 and \$938; a wide range by any standard.

Can You Get A Deal?

So how can you be sure you are getting a bargain when you go Internet shopping? As with any purchase, it pays to make comparisons, shop around, and read the fine print. Unless the item you are looking for is extremely rare, you will generally find it much easier to comparison shop online than in numerous local stores or national catalogs.

You should also weigh the benefits of the savings against any potential problems (such as the slow delivery times we mentioned earlier) to decide if a bargain measures up. Finally, evaluate the reputation of the vendor and gauge the risk, if any, of losing your money. Reputable online stores generally post their service and return policies clearly, and many have registered with one of the online business monitoring firms, such as BizRate.com

(<http://www.bizrate.com>) or BBOnLine (<http://www.bbbonline.com>), a program provided by the Better Business Bureau program. If you stick with merchants who follow these guidelines, you should save money and be satisfied with your purchase.

Now that you know the ground rules, you are ready to start shopping. In this article, we will give you a brief introduction to the different types of online shopping experiences so you will know what to expect of each. We will also delve into pathways you can use to find these online stores, products, and bargains. When you are ready to expand your knowledge beyond shopping, you can find additional articles throughout this section that recommend specific sites to visit, detail ways to save money, and provide information on avoiding scams and questionable business practices.

As you can probably tell, this article is an introduction to online retail shopping, also referred to as e-commerce or e-tailing. Many special bargains can be found online in other categories, as well. These include travel, insurance, home mortgage rates, and more. For information on shopping for bargains in non-traditional categories, please see "Specialized Deals Online" on page 109.

Shop 'Til You Drop

When you first begin your shopping expedition, it may seem there are as many types of online shopping destinations as there are stars in the sky. Actually, online retail environments fall into one of five categories: online merchants, megastores, clearance centers, online malls, and supersites. In addition to online stores and malls, there are three additional resources that assist online shoppers: shopping agents, bargain sites, and shopping search engines.

Individual merchants. These are standalone online stores you can visit individually, rather than through a larger entity, such as a mall. They may be online only or may represent the online presence of a bricks-and-mortar retailer. They generally have a top or second-level domain name, such as <http://www.yourstore.com> or <http://store.janesplace.com>. One example is The Tech Museum Online Store (<http://store.tech.org>), the online presence of The Tech Museum Of Innovation in San Jose, California.

These stores are less likely to offer deep discounts, focusing instead on the uniqueness

of their offerings. If you are not familiar with an individual merchant's name or reputation, you should check its credentials carefully before buying.

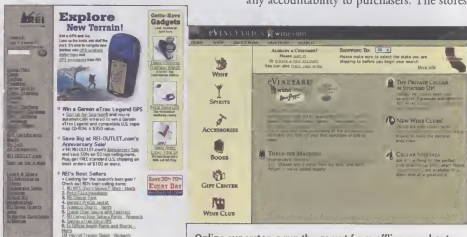
Superstores. Superstores are large collections of merchandise, in one or more categories, offered at one online location. A superstore can be the online presence of a bricks-and-mortar superstore, such as REI (<http://www.rei.com>) or Barnes & Noble (<http://www.bn.com>), or an online merchant that carries an extensive inventory or represents a number of other merchants. It can also be the sales outlet of a manufacturer, such as Dell Computer (<http://www.dell.com>).

Superstores often run specials and feature discounted items. Because a single vendor generally operates the superstore and controls pricing, searches for low prices will not necessarily represent a good value. Superstores often are a good source of auxiliary information about items, such as product reviews, features, and so on. They usually operate under a single checkout

Clearance centers can be excellent sources of bargains, especially for computer equipment, home electronics, and other items that undergo frequent revisions. However, many clearance centers are small operations with no physical presence. In addition, clearance items are often sold with little or no warranty. Check store policies carefully before you buy and be prepared to follow up quickly if problems arise. This is especially true if a site does not advertise a phone number or street address.

One popular clearance center is Overstock.com (<http://www.overstock.com>). Overstock.com purchases surplus, first-quality merchandise from name-brand companies and sells it at 40% to 70% off the manufacturer's suggested retail price.

Online malls. These collections of online stores operate under a single banner for promotional purposes. Each store maintains its own Web address, as well as customer service and return policies. The mall simply links to the stores and does not have any accountability to purchasers. The stores



Online superstores run the gamut from offline merchants, such as REI, to online-only e-tailers, such as wine.com by eVineyards.

system, customer service policy, and satisfaction guarantee.

A prime example of an online superstore is wine.com by eVineyard (<http://www.evineyard.com>), which offers more than 5,000 domestic and imported wines.

Clearance centers. Clearance centers are superstores whose specific focus is bargain merchandise. This can include inventory overstocks, discontinued merchandise, and used or refurbished equipment. Most clearance centers are operated by a single entity that handles payment processing, customer service, and returns.

may also handle payment processing, or the "mall office" may handle it collectively.

Online malls rarely offer sales, although individual stores may. These malls may offer to search for the best price, but the search will be conducted only among the merchant group. Consequently, the results will not necessarily represent a good deal and you should still comparison shop. One example is the Go-Shop International On-line Mall (<http://www.go-shop.com/mall>).

Supersites. Like online malls, supersites are collections of retailers operating under a single banner. In this case, however, the

stores are likely to be reached via a subsite of the supersite and not from a link to a separate URL (uniform resource locator; Web address). Occasionally, supersites will offer a mix of products from other online stores and their own in-house inventory. The shopping sites of online portals, such as Yahoo!, Excite, MSN (Microsoft Network) and AOL (America Online) fall into this category.

Most supersites offer group order processing (a single shopping cart for all stores). With supersites, the purchaser often has the option of signing up for a digital wallet that remembers the user's credit card information for future purchases, as well.

Supersites are generally easy to use for purchases at multiple stores. They usually offer a wide selection, and searches conducted at these sites for the lowest prices on an item are more likely to offer deals than individual stores or online malls. Some, but not all, offer blanket customer service/return guarantees or buyer protection programs. If not, most will at least go to bat for you with a troublesome merchant. A good example of a supersite that offers buyer protection is Yahoo! Shopping (<http://shopping.yahoo.com>).

Shopping agents. Perhaps your greatest weapon in the war on prices, shopping agents scan the Web for you, looking at thousands, and sometimes millions, of products and prices to find the best ones. Some operate by receiving a commission from sales they refer, while some sell listings or traffic data. The best ones provide exhaustive product information and decision-making wizards to help you find the right product for your needs. For more on shopping agents, including a list of our favorites, see the "Top Online Shopping Agents" on page 113.

Bargain sites. These Web sites exist to help you find deals: discounts, coupons, close-outs, and freebies. Most sites catalog the deals by product category, enabling you to search for those that fit your needs. Some offer free newsletters detailing great specials, and others even feature alert systems that can tell you when a prized item has gone on sale.

As with any other site, the lowest possible price isn't always represented; some sabotage their credibility by accepting paid placement for favored listings. Even so, they are

generally an excellent place to look for deals, especially if you already know the value of an item. Among these bargain destinations, one of our favorites is Deal Checker (<http://www.dealchecker.com>), which features discounts, coupons, rebates, and freebies, in addition to e-mail alerts of hot deals.

Shopping search engines. These specialized search engines only return listings relating to shopping. They do not perform price comparisons, but often index the largest collection of sites. They generally have no association with the sites they index and merely act as a referral source.



Shoppers who enjoy a highly personalized experience will enjoy technically savvy sites, such as Amazon.com, which remembers visitor preferences and makes recommendations based on those preferences.

One of the best known examples of a shopping search engine is Buyer's Index (<http://www.buyersindex.com>), which claims to search 20,000 Web shopping sites and mail order catalogs with more than 300 million product offerings.

Getting There

Whoever said that getting there is half the fun has never visited the Internet. For the uninitiated, searching the Internet's millions of Web pages for bargains can be a daunting task. The larger search engines are too all-encompassing, while the smaller directories are not comprehensive enough. Unless you know (and how) to look, finding the perfect item at the perfect price may seem more difficult than searching for the proverbial needle in the haystack.

Fortunately, online shopping has become much more efficient in the past year or so. As the shopping population has grown and matured, e-tailers have refined their software

and processes. They are now more easily accessible, and store preferences, payment information, and other buying information for ready reference.

This personalized orientation, combined with the presence of the intelligent agents we mentioned earlier, has made it much easier for shoppers to obtain what they want at a good price. In addition, dedicated shopping search engines and portals only index online stores, malls, and bargains, excluding the millions of sites not related to e-commerce.

Ready to put all this knowledge and technology to work for you? Decide what is the

most important aspect of your shopping trip, and we will help you find the best place to start your search. Is price truly the major factor? Or are you looking for a good deal from a reputable merchant? Do you purchase mainly popular merchandise or are you a collector of exotic (odd, unusual, or truly rare items)?

What about site savvy? Do you want to shop where you are will be recognized on return visits; where your preferences will be recorded and used to make future suggestions? Do you want to be notified via e-mail or mobile phone when a desired item goes on sale? Alternatively, do you consider it an intrusion of your privacy for personal information to be

collected and used?

Once you have chosen your shopper profile, which may change from one trip to the next, you will be much more likely to obtain satisfactory results.

Bargain basement. Shoppers for whom price is the main consideration should use shopping agents or bargain sites to ferret out the best deals around. They should be prepared to do their own research into customer service and satisfaction ratings, site security and privacy, and more, because they will possibly be referred to online stores with short or spotty track records.

Bargain shoppers may have more resources than any other group on the Internet. Dozens of sites are devoted to sales and bargains, including OnlyOnSale (<http://www.onlyonsale.com/index.html>), a search engine for sales, and eSmarts (<http://www.esmarts.com>), a portal for bargain shopping.

Bargain shoppers who frequently use shopping agents may enjoy PricingCentral

.com (<http://www.pricingcentral.com>), a self-proclaimed portal of shopping agents. It provides satisfaction ratings, reviews, and other information about shopping agents, enabling shoppers to find the agent most qualified to search for even the most specific product.

Credentials, please. For online shoppers who believe price takes a backseat to site security and vendor trust, we recommend using supersites, including portal shopping sites, and superstores as a primary resources. These sites are most likely to represent only the largest, most reputable merchants and offer security features, such as encrypted purchasing, to prevent credit card fraud. In addition, many incorporate buyer protection plans and insurance either automatically or as an option.

These larger sites still offer bargains, especially the market leaders, such as Amazon.com (<http://www.amazon.com>), which offers sales and bargains on a regular basis. Online shoppers wanting to use a shopping agent, but are concerned with vendor security and reliability should use an agent such as the one found at BizRate's Marketplace. It indexes only those merchants that subscribe to the BizRate customer satisfaction rating system. Cautious shoppers may also enjoy searching for individual stores at Buyer's Index (<http://www.buyersindex.com>), which flags stores that participate in one of two reliability programs.

Popularity contest. If you generally purchase well-known products and prefer to stick to brand-name merchandise, you can shop just about anywhere. However, you will have a better chance of locating top-line names and items if you stick with the superstores and supersites mentioned in the previous section. All of the portal sites will work well for you, including Excite (<http://www.excite.com>), MSN (<http://www.msn.com>), AOL (<http://www.aol.com>), and Yahoo! (<http://www.yahoo.com>).

The odd and exotic. If you enjoy shopping the Internet, not for its ability to provide deals on trusted items, but rather to scour the globe for things you will find nowhere else, you will probably fare best with a shopping search engine. For example, a search for the term rare piano on Buyer's Index turned up dozens of listings, including NewEnglandPiano.com, a piano-buying service. The same search on Yahoo! resulted in 14 listings, none of which were

Top In Shops

In the last month for which figures were available (May 2001), it appears online shoppers love superstores and deal makers as much as they love their offline components. According to Nielsen//NetRatings & Harris Interactive, the top five e-tailers are as follows:

1. Amazon.com
<http://www.amazon.com>

2. BMG.com
<http://www.bmg.com>

3. Barnes & Noble.com
<http://www.bn.com>

4. ColumbiaHouse.com
<http://www.columbiahouse.com>

5. J.C. Penney.com
<http://www.jcpenney.com>

(Note: This is a list of the most recent top five e-tailers. eBay is actually number two, and half.com is number six, but we excluded them because they are clearing houses, not true e-tailers.)

piano dealers. Shoppers who enjoy the rare and exotic may also enjoy searching auction sites. A good auction search engine is BidXS (<http://www.bidsx.com>).

Keeping Tabs. If you like a highly personalized, smart experience, you will want to choose one of two large vendors or supersites, which offer the products you like at good prices, and stick with them. Amazon.com, mentioned above, was the pioneer of personalization (and has patented its technology), but Yahoo!, Excite, and other portal sites are hot on its heels. You may also enjoy using PriceGrabber.com (<http://www.pricegrabber.com>), a shopping agent that enables you to save searches and preferences, and be notified via e-mail or wireless device when a designated item reaches a specific price. PriceGrabber also supports wireless price searching and comparison via a Web-enabled phone.

Hands off. If you are uncomfortable with the intrusive nature of many "personalized"

Web sites and do not want information about your buying habits being collected, you will have to be selective about where you shop. Most shopping agents, in particular, collect information about a visitor's preferences and provide it to their advertisers.

This is generally not personally identifiable information. It is aggregate data, which tells an advertiser 10 unidentified people were interested in buying an Olympus camera on a given date, but not that you, Jane, or John were looking for one. Even this anonymous level of data collection bothers some people. If you are one of them, you should avoid using shopping sites that sell advertising or sponsorships. This includes many supersites and shopping agents. Stick to individual merchants instead.

If you find aggregate data sharing acceptable, but want to ensure your personal data is closely guarded, look for shopping sites and agents that are licensees of TRUSTe, an independent privacy-monitoring firm. Being a TRUSTe licensee does not guarantee the site does not share personal data; however, they will tell you before they do so and provide a means for you to opt-out.

You should review the site's privacy policy before signing up for any special services that require you to provide information. The safest sites are those whose policies state they will not share information unless you opt-in. That means you must specifically agree the site can share your data (often by clicking a check-box within the privacy policy). Excite is an example of a shopping site with an opt-in policy. Many sites offer an opt-out policy, which means they will share your data unless you tell them not to.

Let The Shopping Begin

Now that you know the basics of online shopping, you should be ready to explore a little further. Using the resources listed in this article, make your shopping experience online an enjoyable and productive one.

If you decide to make online shopping a regular part of your purchasing habits, you will be part of a rapidly growing phenomenon. According to a recent study released by research firms Nielsen//NetRatings & Harris Interactive, more than 80% of U.S. adults with Internet access have made a purchase online. That represents almost half the population of the United States. [E]

by Jennifer Farwell

Specialized Deals Online

Buy A Car, Find A New Home, Plan A Trip & More

One area in which the Internet really shines just happens to be one of America's favorite pastimes—shopping. By *shopping*, we do not mean just retail shopping for clothes, jewelry, or gifts. The Internet is a shoppers' emporium filled to the virtual brim with deals of all types and sizes: airfare and hotel bargains, new car specials, home mortgage packages, and reduced stock brokerage fees, just to name a few.

Even though the majority (more than 60%) of Internet shoppers currently purchase customary retail items, such as clothing and books, according to a recent study by Brigham Young University, those figures are changing. Online travel services in particular have seen a surge of late. Research firm Nielsen//NetRatings reports the number of online shopping trips to the top five travel sites jumped 42% in 2000 to 22 million visits. The Travel Industry Association reports that more than 59 million people made travel plans over the Internet during that same period.

Other nontraditional industries are also doing well. Online real estate, in particular, is on its way to becoming a major component of a homebuyer's research arsenal. Last year, the National Association of Realtors reported that 37% of homebuyers use the Internet to shop for their new homes. In July 2001, homebuilder KB Home conducted a survey indicating 58% of homebuyers used the Internet in their search.

From travel to real estate, insurance to car loans, savvy consumers are discovering the Internet is a very good place to shop. Come with us as we show you just how awesome your options can be.

Let's Go!

As we mentioned earlier, online travel bookings are quickly becoming a hefty slice of the online shopping pie and will continue to grow for the foreseeable future (\$28 billion in 2005, according to technology research firm Jupiter Communications). This interest means a lot of competition among travel Web sites and a lot of choice for consumers.

There are three big names among online travel agents (a travel agent is classified as an entity that can make reservations or book tickets with hotels, airlines, car rental firms, cruise lines, and so on). These are Expedia.com, Travelocity.com, and Priceline.com. Despite Priceline.com's early entrance into the low fare/price market for hotels and airlines with its "name your price" service, both Expedia.com and Travelocity.com receive more than double the amount of visitors; according to online measurement firm Jupiter Media Metrix.

Perhaps that's because of their customer service. Gomez.com (<http://www.gomez.com>), a

company that ranks companies based on customer satisfaction, rates Expedia and Travelocity tops in overall customer satisfaction. It may also be because Priceline.com is not a full-service travel agency; it does not offer destination assistance, for example, nor let you create routes and save itineraries.

Expedia.com

Among the online travel agents ranked by Gomez.com, Expedia.com was tops with a rating of 7.26 out of 10. It offers flexible searches, which means you can search by variables, including lowest fare, lowest fare within a certain period, specific airline, and more. Once results are returned, Expedia.com lets you sort by factors other than lowest price. This is a bonus for business travelers who may be more concerned about the number of stops or the arrival time than the bottom-dollar price.

Expedia.com works with its partners to provide helpful, destination- and travel-related articles and tools, such as hotel reviews and currency converters. Expedia.com does not have access to as many databases as Travelocity (450 airlines vs. 700 for the competitor, for example). Consequently, its lowest fares are often 10% to 20% higher than Travelocity.com's.

<http://www.expedia.com>

Priceline.com

Priceline.com is really a low-cost booking service, not a travel agent, but since it handles hotels, airlines, and rental cars, we included it with this group. Here, you "name your price" for these items, but don't think that means someone will actually evaluate your offer.

When you submit a price, Priceline.com scours its databases to see if it can match your offer with a rate or fare provided by its partners. The advantage for the customer over other travel agents, according to Priceline.com representatives, is that the company gets discounts that aren't in the general travel databases. If your offer matches one of these specials, you win. Priceline.com recently added a resort getaway service, which should make it even more appealing to travelers who enjoy working with the name-your-price concept.

<http://www.priceline.com>



Travelocity.com

Travelocity scores a 6.45 on Gomez.com, which is lower than Expedia.com's 7.26. Nevertheless, we liked it better, especially for bargain shopping. It is comparable in terms of organization, features, and travel articles and tools, but it handles rail bookings in Europe and Canada (the only online travel agent who does so), and its fares consistently beat Expedia.com's.

<http://www.travelocity.com>

Before you settle on a favorite travel agent, you should also evaluate some of the lesser-known competitors in this burgeoning industry. According to Gomez.com, Uniglobe (<http://www.uniglobe.com>), TRIP.com (<http://www.trip.com>), and BizTravel.com (<http://www.biztravel.com>), all received rankings within two points of Expedia.com and Travelocity.com.

Taking Stock

Another hot online industry for the past few years has been stockbroker services: online trade execution, financial information, and other investment-related services. According to Gomez.com, Charles Schwab tops with an overall score of 7.62. Fidelity Investments and E*TRADE came in second and third, with scores of 7.13 and 7.04, respectively.

While the best deal in online brokerages might be considered one with the lowest commissions, this is not necessarily the case. Consumers should evaluate any online broker carefully to decide which one will best help them obtain their long-term financial goals. Compared to the cost of using traditional brokerages, all three of our contenders represent excellent deals.

CharlesSchwab

Originally dubbed a discount broker in the days when only those with a lot of money could afford to invest in the stock market, CharlesSchwab today straddles the fence between budget online brokerages and more expensive full-service ones. Standard commission for up to 1,000 shares is \$29.95, twice the price of leading online

broker E*TRADE and three times that of low-commission leader Datek.

Even so, it offers robust financial planning services and information and has scored at the top of Gomez.com's list since the first scorecard in June 1997 when it ranked second. It also offers customers investment workshops, instructive CD-ROMs, and personalized investment advice at its branch offices.

<http://www.schwab.com>



REALTOR.com enables visitors to search among more than 1.5 million homes by an exceptionally wide variety of criteria.

E*TRADE

Another Gomez.com perennial favorite, which ranked third on the first scorecard and has taken top honors several times since, E*TRADE has a list of Web awards longer than Microsoft's balance sheet. Inexpensive trades, real-time stock quotes, and an extensive collection of stock reports and expert predictions and information make this a solid choice, especially for knowledgeable and active traders.

In today's volatile market, however, a brokerage such as E*TRADE can be a precarious place for a casual or inexperienced trader. It does not have any offline presence, and it offers little in the way of personalized financial assistance (unless you have \$100,000 to

open a money management account). Its saving grace for the beginner is its account minimum, which is \$1,000 compared to CharlesSchwab's \$5,000. If you have only a few dollars to invest, E*TRADE is an appealing choice as long as you realize that much of your education process is your responsibility.

<http://www.etrade.com>

Fidelity Investments

Like CharlesSchwab, Fidelity is an established firm that jumped on the online trading bandwagon after watching its market share erode to firms such as E*TRADE and Datek. With an account minimum of \$2,500, and trading commissions of \$14.95 to \$25.00 per trade, it sits right between E*TRADE and CharlesSchwab.

It offers an online financial planning tool, as well as a full range of investment articles, expert advice, real-time quotes, and other services common to online brokers. Despite its offline presence, however, Fidelity does not extend offline services to standard online customers, so don't expect to meet with a broker to discuss the year's events. Its online tools are excellent, but they lack the personal touch a human financial advisor can provide.

<http://www.fidelity.com>

Between these three top online brokerages, you should be able to find one that fits your needs. For the active trader, we also want to suggest Datek (<http://www.datek.com>). It not only has the lowest trading commissions on the Internet at \$9.99 per trade, it guarantees that trades not executed in 60 seconds are commission free.

Ticket To Ride

Buying a car can be a little scary when you use a medium that does not let you kick the tires or take a test drive, but that has not stopped thousands of Internet users from purchasing one online. All the online car dealerships hook you up with dealers in your area, so you can see and drive the car before you sign on the dotted line.

A number of Web sites, including AutoWeb.com (<http://www.autoweb.com>), AutoNation.com (<http://www.autonation.com>), and Cars.com (<http://www.cars.com>),

offer online car-buying services. You may want to evaluate these in addition to our two favorites, which are CarsDirect and Carpoint. We chose these two for their comprehensive feature set and 360-degree viewing features.

CarsDirect

Top contender CarsDirect has garnered kudos in every corner and has just acquired Greenlight.com, another top car-selling site. This should make it practically unbeatable. With a car-comparison tool, prices under the MSRP (manufacturer's suggested retail price), and super-low loan quotes (less than 7%), CarsDirect offers new car buyers the best of all worlds.

<http://www.carsdirect.com>

Carpoint

With a feature set similar to that of CarsDirect, Microsoft Network's Carpoint offers something its competitor does not—used cars. While you cannot see 360-degree views of the use-inventory, you can see a photograph representing that type of vehicle and obtain vehicle details and a VIN (Vehicle Identification Number; the manufacturer's unique identification for the exact vehicle).

This lets you search the vehicle's history at a site, such as Carfax (<http://www.carfax.com>) before heading out for the test drive. If you are not sure whether you want a new or used vehicle, Carpoint is a great place to evaluate your options. It is a valuable resource for new car buyers, as well.

<http://www.carpoint.com>

Brother, Can You Spare a Dime?

For many of us, obtaining a loan is one of life's most aggravating processes. Will we be approved? Are we getting the best deal based on our credit history and financial standing?

Recently, the proliferation of credit scoring, where a person's financial merit is judged based on scores provided by credit-reporting companies, has made the approval process much faster, if not necessarily easier. Loan companies have taken advantage of this system to offer online loan evaluations with approvals sometimes within minutes. And, since you can now

get quotes quickly from several sources, you can shop for the best loan a little more easily.

For car loans, the companies mentioned in the previous section are standouts for obtaining a great rate, assuming you are purchasing the vehicle from them.

For mortgage and equity loans, student loans, and auto loans when you are not purchasing the car online, we found one site, LoanWeb.com, which so eclipsed the others; we made it our only listing.

LoanWeb.com

With an easy-to-use interface and a partnership with hundreds of lenders, LoanWeb offers its customers a breadth of selection

are very competitive. In addition, Priceline.com works with dozens of national lenders to provide quick, low-cost access to mortgage loans with guaranteed closing costs.

A Little Insurance

Another industry testing the economic waters of the Internet is the insurance sector. From auto and home to health and life, insurers are streamlining the process, and cost, of purchasing insurance by offering online information and low-price quotes.

To find our top candidates, we turned this time to Top10Links (<http://www.top10links.com>), a site which hand picks and evaluates thousands of sites for criteria such as speed and ease of use. Choosing an insurance policy is confusing enough; you should not have to deal with a confusing or frustratingly slow site when you shop for quotes online.

Top10Links' (and our) choices were InsWeb, Pivot, and Insurance.com. We were further confirmed in our decision with Gomez.com, which gives top rankings (numbers 1, 4, and 2, respectively) to these sites, as well.

Insurance.com

This site offers perhaps the most comprehensive assortment of educational information and tools relating to insurance, including a personal organizer that helps you calculate how much insurance you need. It works with a broad assortment of carriers but requires you to select one before you obtain a quote, which means you may not get the best price. Use this site for its depth of features but get quotes from other sites, as well.

<http://www.insurance.com>

InsWeb

This company, which partners with AutoWeb to provide its online automobile quotes, offers insurance in every conceivable category, including motorcycle, watercraft, and even pet insurance. Fast, easy to use, and feature-laden, InsWeb is a one-size-fits-all destination for insurance on the Web.

Due to the coverage limitations of its partners, consumers in a handful of states (New Hampshire, Louisiana, Nebraska, South

The screenshot shows the HomeStore.com website interface. At the top, there's a navigation bar with links like Home, About, Contact, and a search bar. Below the navigation bar, there's a section titled 'LIFESTYLE SORT RESULTS' which displays a table of property listings. The table has columns for 'City', 'Price', 'Water', and 'More'. The listings include properties in various locations like Atlanta, Georgia, and San Francisco, California. To the right of the table, there's a sidebar with sections like 'THE REAL TRUTH' and 'Missing Details'. At the bottom of the page, there's a 'Fast Facts' section and a 'HomeStore.com' footer.

HomeStore.com, which partners with REALTOR.com, features one of the most efficient neighborhood analysis tools we have encountered on any home-related Web site.

unequalled among online lending sources. Quotes are not always instant, particularly in the case of mortgage loans, but the service is thorough and can generally be depended upon to procure excellent terms and conditions.

<http://www.loanweb.com>

If you are searching for a mortgage loan only, you may want to evaluate some of the online lenders, such as Countrywide Home Loans (<http://www.countrywide.com>) and Ditech.com (<http://www.ditech.com>), which

Dakota, New Jersey and North Carolina) will find their choices limited. The test of us will be able to retrieve insurance quotes with comparative ease.

<http://www.insweb.com>

Pivot

Designed originally for financial institutions, Pivot now offers quotes to consumers, as well. Life insurance is its strongest category, in which it offers both a quick quote service (for guesstimates of coverage costs) and the more detailed application process common to most insurance companies.

A speedy interface, directly from <http://www.pivot.com>, gave this site the boost that convinced us to include it in the top rankings, but we found the quote process was a bit more cumbersome than that of InsWeb. In addition, Pivot wasn't as competitive as InsWeb, which is a better choice for auto insurance quotes.

<http://www.go2pivot.com>

Home Sweet Home

If you want to buy or sell a home or just find out more about the neighborhood of the one you are currently in, online real estate services are available to help. There are no doubts these powerful online destinations save time. And time is money, right? Within seconds, you can browse real estate listings; obtain information, such as climate and crime of neighborhoods; find out how much home you qualify for; or see how homes in your area are selling. If you decide to use the low-price services that link to these sites, such as moving and appraisal companies, you can also save money.

For this section, we turned, not to Gomez for our choices, but rather to the National Association Of REALTORS (NAR), the world's largest professional association. While there are no doubt many excellent real estate firms not associated with the NAR, the group's strict code of ethics gives us confidence that online queries and transactions will be handled honorably and with concern for privacy and security. In a situation where you may be providing a substantial amount of

personal information, we consider this to be an important factor.

REALTOR.com

As the official site of the NAR, REALTOR.com has the power and the proficiency to help you in your quest. With more than 1.5 million listings, this site is a comprehensive portal of real estate. It works in partnership with Homestore.com (with which it shares an interface) to offer tabbed sections on home improvement, finance and insurance, moving, and more. There is also a tab for neighborhoods, where you can find more than a dozen links to sites that detail information on cost of living, crime, schools, and other issues that make a city or town a great place to live.

The only drawback we found with REALTOR.com was some of the listings were old. Several homes we queried about had been sold weeks earlier, and one real estate professional with which we spoke stated she has had trouble getting the site to correct errors in her listings. Nonetheless, the sheer magnitude of this site, and the fact you do not have to register to search the listings, makes it a worthwhile destination for anyone considering a move or home purchase.

Our favorite neighborhood search tool (and we test-drove about a half-dozen) is found on the REALTOR.com Web site using the Neighborhoods or Moving tabs, but it is

not the default interface for either. It lets you select the states in which you want to live, then set the criteria and conduct a search for your best matches. We found this much better than other search tools that enable you to set geographic criteria only by region, or not at all. To go there directly, navigate to <http://www.homefair.com/calc/citysnap.html>.

<http://www.realtor.com>

eRealty.com

Sort of a hybrid between zipRealty.com and REALTOR.com, eRealty.com provides access to more than 500,000 realtor listings in basically the same cities as zipRealty.com and also offers an attractive 1% bonus to buyers. E-mail

alerts, a home-buying timeline and an online scheduling tool are nice perks, but neighborhood profiles are virtually nonexistent. In addition, you have to register with the service in order to conduct a search, which is a requirement we are never fond of.

Even with its drawbacks, eRealty.com has had a spate of positive press coverage, and it promises to simplify the closing process for purchasers. That, and the rebate, makes it an attractive choice if you happen to be buying in a city where eRealty.com has listings.

<http://www.erealty.com>

zipRealty.com

Also affiliated with the NAR, zipRealty.com offers something REALTOR.com does not: Discounted commissions to sellers (3% to 4.5%) and a 1% rebate to buyers.

With only 250,000 listings, it cannot match the scope of REALTOR.com, and its feature set is not quite as extensive. It does not offer a neighborhood search wizard, for example, but it offers a neighborhood profiles feature instead. Powered by BestPlaces.net, the tool requires you to select a state and a city, which is fine if you know where you are moving; not so good if you do not.

Another downside is zipRealty.com covers only the major markets, including Chicago, Boston, Atlanta, San Francisco, and Los Angeles, and it does not cover New York City. Nevertheless, if your target area is covered by this service, which you can determine by looking at http://www.ziprealty.com/buy_a_home/search, then you will probably find zipRealty.com's e-mail notification service, regularly updated listings, mortgage pre-approval services and cash incentives to be a potent package.

<http://www.ziprealty.com>

With So Much To Offer

We hope we have shown you just how great the depth and breadth of online shopping choices can be. No longer are you restricted to purchasing a book from Amazon.com or a piece of memorabilia from eBay. With the tools available to you online, there is very little, other than perhaps a human body part (someone once tried selling a human kidney on eBay once, but the auction was quickly shut down) that you cannot purchase across the Internet. [E]

by Jennifer Farwell

Top Online Shopping Agents

Track Down The Items & Prices You're Looking For



You are trying to find a rare Pokémon card for a neighbor's child, a favorite book long out of print, or the best price on a digital camera. You are hoping to save yourself hours of searching and telephoning by using the Internet to conduct a quick, efficient search for an item.

You go to your favorite search engine and type in the magical keywords for the item you are looking for. To your dismay, you discover that instead of returning a couple of online retailers carrying your item, the search engine returns hundreds of thousands of results, the first page of which has nothing to do with shopping. How can you find that perfect item?

Relax; help is on the way in the form of shopping agents. These specialized search engines comb the vast electronic wilderness of the Internet and help you locate Web sites selling the product you desire. Many will also help you determine the credibility of the seller, the quality of the item, and/or the attractiveness of the price.

How They Work

Shopping agents work in the same fashion as generic search engines, but they search only sites that are specifically designated as shopping (e-commerce) destinations. With an agent, the results you obtain will be much more precise than if you used a standard search engine. Searching for the exact phrase "Pokémon cards," for example, Google (<http://www.google.com>) returned more than 79,000 results, while Buyer's Index (<http://www.buyersindex.com>) returned only a few hundred results, all related to buying and selling.

Unfortunately, the vastness of the Internet means no search engine or agent, even the most extensive ones, can index every site. Consequently, even using an agent, you can never be certain you are finding *every* site that sells a particular item or that you are finding the *very lowest* price. If you know what you want and have an idea what it is worth, however, a shopping agent can speed up the process of finding a desired item at a good value.

Shopping agents come in a variety of flavors. Some return nothing more than lists of Web sites where an item is sold, while others return items and prices with links to e-commerce sites. A select few (the best of the breed, in our opinion) return items, prices, and other information in comparison format, occasionally including even product reviews and other valuable information.

Some agents are much more restrictive than others in the number of sites they catalog, as well. Deal Time (<http://www.dealtime.com>), for example, searches 7,000 shopping sites while Excite's shopping agent, Jango (<http://www.jango.com>), searches fewer than 100. The number of sites an agent indexes is not necessarily an indication of its value, either. For some products, such as rare books, more is better. For generic products, such as Cabbage Patch dolls, an agent that catalogs too many sites is overkill. There is no point scrolling through 1,000 stores offering the same product at basically the same price.

Among sites that index less than 100 stores, it is important to consider the quality and source of the listings. Sites featuring only a few stores often masquerade as shopping agents when they are really online shopping malls. These sites index only the listings of their stores, each of which has paid a fee to be there.

The best agents are broad enough in scope to be comprehensive, but not intimidating. They are also intuitive and well organized and can help lead you through the process of narrowing down your options. As with all transactions, the rule is caveat emptor—let the buyer beware. Unless your item is very rare, you will find the best deal by checking prices on several sites and purchasing from the company that gives you the best combination of price, service, and security.

Who They Are

We located dozens of shopping agents on the Web, ranging from the very specific to the extremely broad. To make our final picks, we considered the factors mentioned in the previous section. We eliminated those sites that do not index at least 100 online stores (or 10 megastores, each of which also indexes a number of stores), as well as those that issue generic referrals rather than offering details and pricing. We then used a combination of user satisfaction rankings and features to narrow the list down to our final choices.

Among our final selections, we discovered most offered assistance in a wide variety of categories ranging from art and antiques to video games. In only two areas—computers and electronics, and books—did we find enough entrants to make the category worthy of special attention. For these, we have created separate sections below. Remember, though, that most agents in our General category offer pricing on these products, as well.

To discover other agents, including the many we didn't mention, visit Pricing Central (<http://www.pricingcentral.com>), a self-proclaimed portal of comparison shopping.

General

Using the shopping agents listed below, you'll find just about anything you are looking for and the price you want.

DealTime

This site is so feature-laden that it may overwhelm some users at first, but if you have a little patience, you will be amply rewarded. You can choose to compare a single item by price and vendor, a category of items by product, or a combination of both. Product information and photographs are also provided.

<http://www.dealtime.com>

MySimon

With more than 2,000 merchants, MySimon publicizes itself as the largest comparison-shopping site on the Web. While we find this assertion unlikely, we can report that it offers perhaps the broadest range of categories. It assists shoppers with vendor reviews from Gomez.com, a user-based rating service, product guides from *Consumer Reports*, and a free shopper newsletter. You can sort results by product, merchant, price, Gomez.com ranking, and more.

<http://www.mysimon.com>

PriceGrabber

PriceGrabber is MySimon on steroids. Its comparison chart is practically identical, but it returns more stores than MySimon (with

the same input) and enables users to filter results by a wide array of variables, such as memory, aperture, and focal length for cameras. Enter a generic term, such as "CD player," in the Search box and PriceGrabber leads you through the selection process. You can even sort categories by popularity to see what everyone is buying.

<http://www.pricegrabber.com>

PriceSCAN

Named one of the "best sites optimized for small screens" by *Pocket PC* magazine, PriceSCAN is popular with users of PDAs (personal digital assistants) and handheld PCs. Its categories run the gamut from books to watches, and it returns comparative results (vendor, price, and date) from hundreds of stores. It also features product photos when available.

<http://www.pricescan.com>

Smartshop.com

This site claims to index "8,390,653 merchant offers for 1,553,918 products." Yowser! It is easy to use, offering the standard assortment of categories, including books, electronics, music, software, and more. Comparison charts include store return policies, which was something we liked, but the site lost points for its obtuse search engine. For example, when we typed Canon digital camera in the Search box in the Comparison Chart, the results ranged from Casio to Jensen, without a Canon product in sight.

<http://www.smartshop.com>

Books. If you are a book lover, or if you just like to look for good deals, these shopping agents can help you locate the bestsellers, reference materials, rare titles, and more.

AllBookstores.com

With a vendor list of only 30 stores, this site is less comprehensive than its lesser-known competitor, BookFinder. Even so, this site features some unusual, independent

booksellers, and its popularity helped boost it into the ranks of the top contenders. Search by author, book, ISBN (International Standard Book Number; a unique 10-digit number used by booksellers, libraries, and other groups to identify a specific book), or keyword.

<http://www.allbookstores.com>

BookFinder.com

This site cross-references the titles of more than 30,000 booksellers and is the definitive site for rare book collectors. Search by author, title, book type (including first edition or rare), or click the Show More Options link and add such criteria as binding.

<http://www.bookfinder.com>

Computers and electronics. Looking for deals on specific computer and electronics items? These sites are sure to deliver.

ComputerShopper

From ZDNet comes this agent whose comparison results feature prices and descriptions, with shipping costs (if they are known), inventory status, and links to company information and home page. You can also access a database of product reviews and sign up for Buyer Alerts that notify you when an item's price drops.

<http://www.computershopper.com>

PriceWatch

All of PriceWatch's listings are paid, but it is so extensive that it merits a ranking. We typed agp video card into the Search box, for example, which produced 190 pages of listings, 12 to a page. This is a great place to find cut-rate pricing on computer equipment, but you need to be specific in your search terms, because PriceWatch does not let you refine your search in the way that PriceGrabber does.

<http://www.pricewatch.com>

Get Shopping

We've given you the sites to go to; now it's up to you to explore the top online shopping agents to find the items you've been looking for. [E]

by Jennifer Farwell

(NOTE: For additional shopping agents, go to our Smart Computing Web site (<http://www.smartcomputing.com/guide/0910/agents/>).

Shoppers Beware

Tips To A Secure Online Shopping Experience

If you are hesitant to shop online because of concerns over security issues, you are not alone. According to a 36-country study by research firm Taylor Nelson Sofres Interactive (TNSi), nearly 40% of people who have never shopped online avoid it because of security concerns.

In actuality, these fears are largely unfounded. Thanks to a number of consumer-advocacy and watchdog entities, the Internet has become a safer place to shop in the past few years. In addition, some sites have incorporated services that guarantee your purchases, which virtually eliminates your risk.

While some groups, such as the IFCC (Internet Fraud Complaint Center; <http://www.ifccbi.gov>), receive thousands of consumer complaints each year, they represent only a small fraction of the millions of transactions conducted over the Internet.

Among the complaints, online auctions represent the vast majority with 78% in 2000, according to The National Consumers League, which reports that 41% of all auction participants have a problem of some sort. General merchandise purchases account for far fewer problems (just 10%) with scams, such as credit card offers, travel deals, and advance-fee loans accounting for most of the remainder.

How can you avoid becoming one of those statistics if you shop online? To make your online shopping experience as worry-free as possible, pay heed to the precautions we outline throughout this article. Make your major purchases at sites that guarantee the sale (we will detail some of those for you here, as well). Finally, watch out for the top Internet scams, which are listed in detail in the "Internet Dot Con" sidebar.

Caveat Emptor

Nowhere, perhaps, does the adage caveat emptor (let the buyer beware) hold true more than on the Internet. The best way to ensure a safe shopping experience is to realize you are

your own best defense. Here are some tips to keep in mind when shopping online.

1. **Know your merchant.** Purchase from vendors you know and trust, or for whom someone else vouches. Independent organizations, such as WebAssured (<http://www.webassured.com>), ePublicEye (<http://www.thepubliceye.com>), and BizRate.com (<http://www.bizrate.com>), monitor and rate merchants based on reliability and customer service. These organizations also issue seals of



approval to sites that comply with requirements. While Gomez.com (<http://www.gomez.com>) does not monitor merchants, it does provide merchant scorecards based on customer satisfaction reports. Visit the aforementioned sites for lists of reputable merchants; WebAssured also maintains a list of companies for which to watch out.

2. **Stash your cash.** If you have a credit card, use it. According to The National Consumers League, only 6% of auction complaints and 28% of retail complaints involve credit card purchases. By law, credit card companies cannot charge consumers for

unauthorized transactions (those made without the consumers' knowledge or agreement) of more than \$50. For authorized transactions, credit card companies provide a dispute and resolution process to help you get your money back in the event of a problem. If you do not have access to a credit card, consider making purchases only through an escrow service, which we take a closer look at in the "Internet Dot Con" sidebar, or from online stores that guarantee purchases. (See item number 4).

3. **Always pay securely.** When you use a credit card or provide any personal information, make sure you are on a secure Web site to help prevent malicious interception during transmission. Secure sites will either have a letter S in the URL (Uniform Resource Locator; Web address), which will appear as <https://> rather than <http://>, or the site will have an unbroken key or padlock symbol in the corner of your Web browser. If you choose, you can set your browser to notify you if a site is not secure. If the site is a super-site, and you are sending credit card information to a third party for transmission to a vendor, make sure your data is encrypted (scrambled) when it is sent it to the payee (merchant).

When you deal with shopping malls or smaller vendors without secure sites, consider using a service, such as Yahoo! PayDirect (<http://paydirect.yahoo.com>), that handles payments for you. This method does not protect you against deceptive offers, but it can prevent credit card fraud if the merchant is an identity thief.

4. **Use protection.** A number of companies offer automatic or optional buyer protection insurance, which means your money is returned in the event of a problem. For example, in addition to Amazon.com's (<http://www.amazon.com>) store return policy, it offers buyer protection for auction and third-party store purchases of up to \$250 for standard purchases and \$2,500 for purchases made through Amazon Payments, (its registered payment service). Yahoo! Shopping (<http://shopping.yahoo.com>) offers payment protection for retail purchases (\$750 standard; \$1,000 through Yahoo! Wallet payment service). Yahoo! Auctions also (<http://auctions.yahoo.com>) offers buyer protection (\$250 standard coverage; up to

\$3,000 [minus a \$25 deductible] if you use Yahoo! PayDirect). With certain limitations, WebAssured provides buyer protection for consumers who make purchases at WebAssured-certified stores.

5. **Keep it private.** Merchants, online malls, and even merchant rating services often collect information about their customers and sell it to other entities. To ensure a merchant or online mall will not disclose personally identifiable information, such as your name, address, or social security number, take a look at its privacy policy. Check to see if TRUSTe

(<http://www.truste.com>), an online privacy monitoring company, certifies the merchant.

6. **Do your homework.** Check all store policies before making a purchase. Can you return items? What method of shopping is used? Is there a money-back guarantee? In the case of an unknown merchant, take a look at its contact information. Is there a store location provided on the site? If so, call directory assistance in that area to see if the company is listed in the phone book.

7. **Make a record.** Print or save electronically any record relating to an online purchase.

If the site does not generate a receipt or send you one via e-mail, you can take a snapshot of it as it appears on your computer screen. With the purchase record in view, press the PRINT SCRN button located on the right of the top row of buttons on your keyboard. Next, open Microsoft Paint and choose Paste from the Edit drop-down menu. The image you captured is pasted in place for you to save. Make a notation about the expected delivery date and note it on your calendar or in a contact manager. Also make note of which credit card you used so you can easily check the statement.

8. **Track it.** Create a system to remind yourself of your purchase on the day the item should arrive. It is easy to forget about purchases made quickly or on impulse. If the item does not arrive as planned, call or e-mail the vendor immediately. If the delivery date is more than 30 days away, or more than 30 days have passed, check your credit card statement to see if the item has been billed to you. If it has, contact your credit card company to dispute the process. Credit card companies have limits on how long after you receive your statement you can dispute a claim. Therefore, it is better to initiate a dispute and cancel it later than to miss your window of opportunity.

9. **Don't procrastinate.** If you are unhappy with an item, do not hesitate to return it. Insure it for the full amount of purchase, which may only cost a few dollars. Then, if the company tries to claim it never received the return, you'll have your proof of insurance and can get your money back from the U.S. Postal Service.

10. **Get outside help.** If you are dissatisfied with a merchant or how a transaction is handled, lodge a complaint with the IFCC. You can also contact WebAssured, which mediates disputes with non-certified vendors; it has a 76% resolution rate. Another option is to contact the Better Business Bureau in the state where the vendor is located.

Be A Smart Shopper

Online shopping can be safe, convenient, and fun. Millions of people do it everyday. With the tips provided throughout this article, you can be well on your way to becoming a smart online shopper. [E]

by Jennifer Farwell

Internet Dot Con

Scam artists have long known their best victims are uninformed ones. Educate yourself regarding some of the top scams, and the means to avoid them, and you will have taken a big step toward putting the "Internet Dot Cons" out of business.

According to the Federal Trade Commission, the current top Internet scams are as follows:

1. Internet auctions (items do not match the description or are never delivered)
2. Internet access services (free or reduced-cost Internet access)
3. Adult Web site credit card fraud (provide a valid card number to prove you are over 18 years old)
4. International modeling (download a free dialer to view free pornographic material)
5. Web cramming (free Web hosting)
6. Pyramid schemes
7. Bargain-basement travel offers
8. Be-your-own-boss business schemes
9. Stock tips
10. Health claims for unproven products.

Among these scams, auctions are the most prevalent. To avoid being taken during an auction, follow the tips outlined earlier in this article and insist on using a reputable escrow service, such as Escrow.com (<http://www.escrow.com>). An escrow service is an intermediary to which you pay money for a product. The service holds the funds until you receive and approve the item, and then releases your payment to the seller. Escrow services can be scams, as well, so make sure you use one that has a good reputation.

In the case of auctions and all other sources of potential trouble, a modicum of common sense will go a long way toward protecting your interests and pocketbook.

1. Be wary of extravagant claims, and get all promises in writing. Read the fine print. If it sounds too good to be true, it probably is.

2. Look on the site for a privacy policy, which states what an entity can do with your personally recognizable information, including credit card numbers. If you

do not see one or cannot understand it, go elsewhere.

3. Be skeptical of any company you cannot identify. Call your local Better Business Bureau before you agree to any business deals that require cash up front. Be wary of companies who are identified only by a toll-free phone number or an address with a P.O. Box.

Many consumers who fall prey to scams have let greed triumph over prudence. Would you eat a meal or accept a package that you couldn't identify, even if it was supposed to be free? The same is true of deals online, especially if they require financial participation on your end.

If you or anyone you know suspects they have been victimized in a scam, call 877-FTC-HELP to file a complaint with the Federal Trade Commission's Consumer Response Center. For a list of current Internet scams found online or via e-mail, visit Internet ScamBusters (<http://www.scambusters.org>) ▲

Choose An ISP

The Free Way (Almost) To The Information Superhighway



information on the service, click the BlueLight Unlimited Internet Service button on the home page. The company's pay rate of \$8.95 per month for unlimited use makes it a long way from free, but it is still relatively inexpensive.

<http://www.bluelight.com>

dotNow!

dotNow! provides coverage nationwide, as well as in Europe, Australia, and New Zealand. In exchange for free Internet access,

dotNow! places an ad bar on the user's screen. Advertisers purchase space from dotNow!, either on the ad bar or in the form of pop-ups or stay-behinds.

Download dotNow! software from its Web site. The Help link on the home page leads you to the Frequently Asked Questions section, where you can see if an access number is available in your area.

<http://www.dotnow.com>

Juno

Beginning as an e-mail-based service, Juno has expanded to offer free Internet access across the county. The free service provides e-mail features; online technical support; and the Juno Guide feature, which is a Web navigation

and advertising tool that floats at the top of your screen.

Juno's Web site also carries a good set of FAQs (frequently asked questions), and its terms of service are straightforward and easily understood. The Premium service costs \$14.95 per month, offering quicker connections, expanded customer service, and fewer ads.

<http://www.juno.com>

NetZero

NetZero's free Internet service has been available for about three years and hosts more than 3 million users. You can download the software directly from the Web site for free, or you can purchase a NetZero Turbo CD online and install the software yourself.

Using NetZero's free service, however, users are restricted to 10 hours of Internet service per month—a recent reduction from 40 hours—and the company is not hiding the fact that it hopes to move subscribers from free service to a plan costing \$9.95 per month.

<http://www.netzero.com>

Juno/NetZero Merger?

CNET News recently reported Juno and NetZero have announced plans to merge, forming an ISP called United Online. If this were to occur, United would become the second largest ISP in America. At press time, detailed merger information was not available on either the Juno or NetZero sites.

Things To Keep In Mind

When you are looking for a free ISP, or any ISP for that matter, consider the following:

Access numbers may not be toll-free. Check with your local telephone company.

Someone is watching. All free ISPs take specific, detailed user information and make it available in aggregate form to advertisers. If this bothers you, stick with a fee-based ISP.

Customer support is limited. Some vendors offer only e-mail support with free connection service. If you want unlimited, live tech support, you're probably going to need to pay for a premium plan.

Check for a regional ISP. Depending upon your location, a regional ISP may offer many of the advantages of nationwide providers, but on a smaller geographic scale. You can find a directory of free ISPs at Freedomlist.com (<http://www.freedomlist.com>). [65]

by Michael McAllister

"If it's free," we sometimes say, "we'll all go." When the word *free* is coupled with ISP (Internet service provider), the mouse finger twitches . . . but the brain says, "There's got to be a catch."

Free ISPs can be classified into two groups: Those that are still available and those that aren't. Many formerly free sites have closed, others have merged, and still others are now fee-based entities. As of this writing, about 25 ISPs offer free service in the United States. Below are services available nationwide.

Address.com

This is a browser-based service, and as stated in its Terms Of Service, Address.com makes certain modifications to your browser that let it serve advertising, control your Web surfing, and restrict your ability to perform certain functions. One way Address.com earns advertisers is by overlaying the Web pages a subscriber visits with software that highlights certain words and phrases. Using this software, visitors can click the highlights and access related pages belonging to other advertisers.

<http://www.address.com>

BlueLight.com

"Attention Kmart Shoppers . . ." BlueLight.com once provided free connection service, but this will soon be discontinued, and it is not accepting new subscribers. The premium service, however, can be enjoyed free for one month with the purchase of any non-clearance item at BlueLight.com. For more

Our Favorites

Address.com

<http://www.address.com>

BlueLight.com

<http://www.bluelight.com>

dotNow!

<http://www.dotnow.com>

Juno

<http://www.juno.com>

NetZero

<http://www.netzero.com>

E-mail & Instant Messaging Apps

Check Out The Services That Let You Communicate For Free

Since the dawn of speech, we've grown accustomed to communicating for free. Just open your mouth, not your wallet. We expect the same degree of convenience when communicating online via keyboard, and ignoring monthly access fees, that's often what we get.

The ways to reach out and tap someone seem to grow every day. In addition to a fleet of e-mail and instant messaging clients you can install on your hard drive, there are far, far more sites offering these services as remotely managed applications you can just log into and use from any Web-enabled PC.

Many of these applications are free to some extent. They may be gratis outright, enticements to more robust fee-based features, or shareware you're expected to purchase at the end of your trial period. In any event, if you've grown used to using the same e-mail or messaging applications for years on end, it's time to look around at the market's current offerings. The level of functionality you get in today's software for virtually no cost is astounding. With just a few clicks for download and installation, you'll take your ability to communicate by keyboard to a new level.

E-mail Applications

A lot of emphasis gets placed on *things*, not how you use them. If people focused as much on how to drive as opposed to which car to buy, the roads would be a lot safer. Similarly, while picking the right e-mail application is important, we should also pause to consider how e-mail is best used. Free software is not a license to freely abuse the resource. As your e-mail use and skill continue to grow, keep these five points in mind:

1. Never send unsolicited commercial messages, or spam as it is more commonly known. Not only does this label you as the lowest, most desperate form of online creep, it consumes valuable Internet bandwidth and

server resources. You know how the Internet tends to slow down at peak usage hours, frustrating everyone? Some of that congestion is due to spam. This also applies to hoax letters and chain mail.

2. Use a current virus scanner and implement security patches. While many e-mail apps avoid the security holes in Outlook and Outlook Express, the fact remains that today's computer-based pathogens are transmitted chiefly by e-mail. Get educated about how these viruses work and take steps not to either receive or inadvertently pass on any bugs.

3. Write the language properly. The rules of language exist to help us all communicate more efficiently and effectively. Most major e-mail titles now have built-in spelling checkers. If you choose to willfully misspell and abandon all sense of grammar and punctuation, all you're doing is telling the recipient that you a) simply don't grasp elementary school-level language skills, b) are willing to miscommunicate your thoughts, or c) don't care enough about the reader to bother putting more effort into your words.

4. Go easy on the attachments. Again, more data being poured across the Internet means less bandwidth for everyone. Rather than simply attaching a 3MB picture of the family to your e-card for Aunt Mabel, compress the image down to 200KB or less by converting it into JPEG (Joint Photographic Experts Group) format. Got several attachments to send? Condense them all into a single Zip archive with a utility, such as WinZip (<http://www.winzip.com>).

5. Relax first, write second. Top government officials can tell you all about how permanent and potentially embarrassing e-mail messages can be. When you get irate or excited about something, don't reach for the e-mail app. Let the situation simmer for a few hours,



organize your thoughts, then write in a calm, rational manner. This is not a phone call. Assume that every message can and will be held against you later.

Cautions aside, let's look at the kinds of apps that are available today.

Eudora

Qualcomm's time-honored e-mail title is still the market's leading alternative to Microsoft's twin Outlook titans—and for good reason. With a streamlined, intuitive interface and a comprehensive grasp of all essential e-mail features, Eudora is a great solution for both Windows and Mac users.

The latest version (5.1) offers plenty of extra enticements, such as SSL (Secure Sockets Layer) support for privacy protection; the ability to add photos to your contacts; a conduit for synchronizing with Palm OS-based handhelds; and much more.

Eudora also takes an interesting approach to licensing with three available versions. Buy the full version for \$49.95 or download it in sponsored modes, which means it continually displays vendor ads. You can also download a free stripped-down version that is ad-free.

<http://www.eudora.com>

IncrediMail

If you thought Clippy, the animated paper clip from Microsoft Office, was the epitome of digital entertainment, you're going to love IncrediMail.

This free app won't wow you with advanced security features or nifty server tweaks. Instead, IncrediMail is all about the multimedia experience. It's like the HTML (Hypertext Markup Language) features of Outlook on steroids. Have your messages announced by a butler or

female anime warrior. Watch your outbound notes fold themselves into paper airplanes and fly away. Add your signature, voice clips, sound effects, or animations.

This isn't the way you want to send everyday e-mail messages if you're using a 33.6Kbps (kilobits per second) dial-up modem, though. All of this eye and ear candy takes up space. But be on the lookout for IncrediMail to be co-branded with other online entities. Who knows? Don't be surprised to see a "Matrix II"-branded e-mail app sometime next year.

<http://www.incredimail.com>

Netscape Mail

If you've jumped the Microsoft ship and use Netscape as your main browser, you'll find Netscape Mail to be an excellent correspondence client. Setting up different user accounts is a cinch, and Netscape's multi-threading manages them simultaneously.

Thanks to being owned by AOL Time Warner, Netscape also lets you check your AOL mail without having to dial into the service, which is a huge convenience for users pulling mail from AOL and other ISPs (Internet service providers).

The program's interface is simple, dominated by an accounts/folders pane, a message list pane, and a preview pane, all of which have resizable borders. Support for newsgroups is built in, and the filter features are both robust and easy to use.

<http://www.netscape.com>

Outlook Express

If you use a current version of Windows, you own Outlook Express. The application comes bundled into Windows, or you can also download more current versions for all platforms, including the current beta version of OE6, from Microsoft's site. Don't overlook OE just because it's bundled with your operating system; the application is one of the best e-mail and newsgroup clients around. You get support for multiple users, multiple signature files, HTML-based stationery designs, plenty of filtering options, and the ability to download messages straight to removable media. If you're totally lost as to which mail client to use, start here. You may never switch away.

<http://www.microsoft.com>

Pegasus Mail

The Pegasus mail application has been flying around the Web for a long time, since 1990, in fact. In addition to Mac and Windows versions, there's also a current DOS edition for all you GULphobes and corporate workers who haven't received a new PC since the last George Bush was president.

Unlike other e-mail clients, though, Pegasus has stuck to its roots and kept its application small, lean, and fast. This client offers a wide range of advanced features,

has some of the most powerful junk mail filtering tools we've seen. You can scan messages by word lists or sender information either before your download the message or after. If this isn't enough, download a third-party tool written in the PicoScript language or script your own from scratch. Download the 30-day free trial; registration is only \$25.

<http://www.pocomail.com/poco>

The Bat!

After the first 30 days, the single-user version of this phenomenal e-mail app costs you \$35 to register (\$45 for businesses), but it is money well spent. The Bat! covers all the bases of a standard e-mail client.

You get full support for POP (Post Office Protocol), APOP, IMAP4, and SMTP (Simple Mail Transfer Protocol) protocols; the ability to check multiple accounts simultaneously; and 15 different language interfaces. HTML support is a snap to disable if you prefer plain text, and The Bat!'s built-in image viewer beats dealing with an external pop-up application.

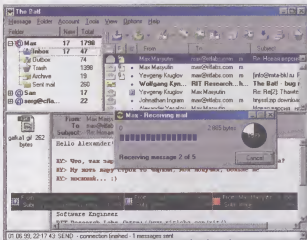
Because The Bat! does not tap into the Windows address book, it never spreads popular LoveLetter-type viruses, plus the application warns you before opening a suspicious attachment.

http://www.rtlabs.com/the_bat

Instant Messaging

Faster and more convenient than e-mail, IM (instant messaging) is the waxing rage in online communications. All IM apps do essentially the same thing; the difference between them is primarily in the peripheral options, especially in the appearance of your messages.

In case you're just now tuning into the IM phenomenon, the biggest debate in the business is whether the major vendors (AOL in particular, since it owns by far the largest user base) will open their source codes and let users of all IM platforms communicate with one another. As part of its deal with the FCC to merge with Time Warner, AOL promised to open AIM to rivals, but the company is behind schedule and appears to be dragging its feet. Many people feel that until universal interoperability is achieved, IM will remain fettered and devoid of significant feature evolution.



Simple and powerful, The Bat! is a multilingual e-mailer's dream. The encryption and antivirus features in particular make this an outstanding alternative to more mainstream e-mail apps.

everything from very powerful filtering tools to merging letters for multiple personalized recipients to automatic replies and forwarding when coupled with the Mercury mail server. You get encryption, template capabilities, Novell NetWare support, and much more.

Pegasus Mail remains a great e-mail choice and one of the best options around.

<http://www.pmail.com>

PocoMail

Surprisingly broad in its features, PocoMail offers a fairly straightforward, intuitive interface backed by some formidable filter and scripting tools.

On the outside, you see a traditional nested hierarchy of folders, adjoined by the folder's message list and a preview pane, then optionally joined by a favorites list of contacts and recipient groups, all topped by the traditional handful of mail functions, such as Send, Forward, and Print. (You may get a different appearance if you opt for any of Poco's various skins.) Under the surface, PocoMail

Be aware that IM comes with its own set of mores and netiquette, just like e-mail. Before you go hog wild into the great chatting yonder, keep these tips in mind:

1. Don't just burst into a conversation. The other person might be tied up, even if he has not posted a Busy or Away notice. Start by asking, "Are you free?"

2. Find the balance between brevity and gibberish. From emoticons to a fleet of messaging acronyms, it's easy and efficient to abbreviate when messaging, but don't lose your recipient's understanding in your rush to be concise.

3. Don't hesitate to block pests. We have too little time to ask people who don't get the hint to go away—again. Block them.

4. Take a hint. You know how annoying it is when you politely tell someone you need to get off the phone and that person just won't shut up? The same thing happens with IM. If the person needs to go, let him go.

5. Be aware of schedules. Many people use IM for business during the day and personal use at night. Just because you're working late doesn't mean other people also are.

Now that you're armed with even more good manners than you were before, let's chat.

America Online Instant Messenger (AIM)

While you can't say that AOL's buddy lists made the ISP the world leader it is today, you'd be more accurate in saying that AOL's innovations made instant messaging the gigantic success it is now. When AOL decided to spin AIM off from the paid-for subscription benefits list, thus making it available for free to anyone, IM exploded across the Internet.

AIM currently boasts more than 20 million users, easily twice the number of its nearest competitor, and for good reason. You get features, such as the ability to make voice calls, embed multimedia files in your messages, and transfer files just like an FTP (File Transfer Protocol) program. The interface is simple, the privacy features are decent, and you can access your Buddy List from any Web-enabled PC using AOL's QuickBuddy site (<http://toc.oscar.aol.com/tic.html>).

<http://aim.aol.com>

ICQ

This AOL-owned title is the most feature-rich of all free IM clients. Think of it as the

Our Favorites

E-mail applications:

Eudora

<http://www.eudora.com>

Incredimail

<http://www.incredimail.com>

Mozilla/Netscape 6.1

<http://www.netscape.com>

Yahoo! Mail

<http://mail.yahoo.com>

The Bat!

<http://www.rtlabs.com>

IM applications:

AIM

<http://www.aol.com/aim>

ICQ

<http://www.icq.com>

MSN Messenger

<http://messenger.msn.com>

Trillian

<http://www.ceruleanstudios.com>

Yahoo! Messenger

<http://messenger.yahoo.com>

power user's IM solution. You don't get cartoonish smiley faces, but you can do practically everything else, such as send SMS (short message service) notes to cell phones; operate through MS Outlook; browse through content channels; and much more. ICQ works behind firewalls, is PDA (personal digital assistant)-compatible, handles e-mail, and even sends greeting cards. ICQ is the IM Swiss Army knife and deserves your attention.

<http://www.icq.com>

MSN Messenger

As with most fledgling Microsoft apps, MSN Messenger looks very much like another me-too program. At first glance, you might mistake it for AIM or Yahoo! Messenger. Under the hood, though, MSN Messenger

packs a few surprises. You get the standard chat, voice calling, file sharing, and the ability to control Away messages. But Microsoft uses Messenger to complement its other services, so you'll also find integration with your Money stock portfolio and MoneyCentral content. You'll also get access to your Hotmail account, be able to conference with NetMeeting, and play games via Microsoft's DirectPlay site. While not an irresistible IM package, MSN Messenger is a must for anyone already knee-deep in MSN services.

<http://messenger.msn.com>

Trillian

The application every IM devotee has been praying for, Trillian is a messaging client compatible with the Big Four (AIM, ICQ, MSN Messenger, and Yahoo! Messenger), then it tacks on an additional IRC (Internet Relay Chat) client for group messaging. Trillian isn't another IM service so much as a conduit for existing services. Merely select your IM services, input the appropriate login and password info, and you're ready to IM and chat across all five platforms at once. With IRC, you can also perform file transfers and carry on encrypted conferences.

<http://www.ceruleanstudios.com>

Yahoo! Messenger

Yahoo!'s outstanding IM software really leverages the portal giant's other services and is working to push the edges of cool messaging enhancements. For starters, Yahoo! Messenger has compatible clients for every platform from Mac to Windows CE to RIM handhelds, so you can send an instant message from practically any computing device on today's market.

Voice chat is free, and you can make international PC-to-phone calls for as little as four cents per minute. Yahoo! Messenger is also the first IM client to integrate Web cam-based video communications. On top of all the conventional IM functions, you can also access much of your My Yahoo! content, namely e-mail, weather, news, stock quotes, alerts, and sports scores.

<http://messenger.yahoo.com>

Explore Your Options. With so many e-mail and IM applications from which to choose, explore your options and pick the one that works best for you. **[5]**

by William Van Winkle

Talk For Free Using Your PC

Explore Your IP Telephony Options

Who hasn't dreamed of making free long distance phone calls? Now you can, thanks to a technology called IP (Internet Protocol) telephony. This technology breaks your voice up into tiny packets and carries it over the Internet's packet switch network. The packets are then decompressed and reconverted into voice. Although the technology means you can make free or almost-free phone calls, each packet doesn't always reassemble perfectly, resulting in word dropouts or fuzzy noise.

However, in spite of the technical glitches, IP telephony is gaining in popularity due to attempts to beat the high cost of standard long-distance calls. In fact, in 1999, about 4 million households placed calls over the Internet. However, that figure tripled to nearly 12 million in 2000, according to the Boston-based research firm, the Yankee Group.

Using IP telephony (also known as VoIP [voice over IP]), you can make calls to a regular telephone or to another PC or fax. Whichever type of call you make, you'll need a good sound card (most new computers come with one preinstalled), a headset or speakers, and a microphone. Although you can make calls using a 28.8Kbps (kilobits per second) modem, the faster your connection, the better the sound quality. If you have a cable modem or DSL (Digital Subscriber Line), the voice sound on your system will come closest to emulating a *real* phone.

We'll walk you through getting free long distance calls from one of the most popular Internet services and tell you about four more of the best.

Dialpad

With 13 million registered users, and servicing 400,000 calls a day, Dialpad (<http://www.dialpad.com>) is one of the most popular free Internet phone providers, and it's the only one currently offering unlimited free long distance PC-to-Phone calls. Using the dialpadbasic

service, you can make free PC-to-Phone calls anywhere within the United States and free PC-to-PC calls worldwide. The only requirements for PC-to-PC calls are that both users be registered with Dialpad and that both are online at the same time.

Get started. From Dialpad's home page, click the Learn More link under the About US heading. On the About Dialpad page,



click the Products link and scroll to the bottom of the page to the dialpadbasic heading. Click the Learn More link. From there, you can take a tour of how the system works, register for free long distance service, or have Dialpad run an online check to see if your computer meets its requirements.

If you run the online test, your computer will be checked to see if it's running Internet Explorer 4.0 or Netscape Navigator 4.5 or better. It will also check to see if cookies are enabled and whether your computer can run Java applets. If your computer fails any of these tests, Dialpad will tell you how to upgrade. At the bottom of the online test page, you'll find a table showing both the minimum and optimal system requirements. We recommend running the online check before registering.

To register, fill out the online form, which asks for your name, address, e-mail address, user ID, and password. Next, you'll be asked to fill out a member information form for demographic purposes. Lastly, you'll get the chance to sign up for special offers from Dialpad sponsors.

Next, a Security Warning box appears, asking if you want to install and run Dialpad US Java Applet. Click the Yes button to continue. A Java applet will load a dialer, which simulates a phone keypad.

The standard dialer comes with a silver and green skin, but you can change its appearance by clicking Dialpad Skins, located on the left side of the dialer. Currently, the only other choices include Classic (a funky wood grain and old-fashioned telephone look) and Translucent (a mottled yellow-green colored skin). However,

Dialpad states additional applet skins will be available in the future.

You're now ready to make your first call. However, if your system is running behind a firewall, you will need to configure it so Dialpad can connect to its Web site.

Make your first call. To make your first call, plug your headset, which must include a microphone, into the computer's sound card jacks or plug a simple microphone into the microphone jack and turn your computer speakers on.

Next, with the Java applet dialer running, enter 1 plus the area code and the phone number on the keypad, or type the number in the empty box to the right of the keypad. Then click Dial. Before you're connected, you'll have to listen to a short advertisement.

Once connected, simply talk into the microphone to communicate with the person on the other end. When you're finished, click End to disconnect.

For optimum performance, you may need to experiment with the distance the microphone needs to be from your mouth or at what level to adjust the volume. The dialer software has separate speaker and microphone volume controls, so use these to find your ideal settings. To suppress any echo, click the Sound Settings link located on the left side of the dialer, and click the radio button to turn Echo Suppression on.

When you've completed your calls, click Log Out. In the future, whenever you want to make a call, go to Dialpad's home page, log in with your user ID and password, and from My Dialpad, click Make A Call. The very first time you log back in you'll be asked for a validation code. You'll find the code in the e-mail message Dialpad sent you after you registered.

Using the Address Book. Your Dialpad account includes a nifty address book, which is accessed from the link on the left side of the keypad. Use the address book to create new individual contacts or groups. If you use Palm Desktop, Outlook, Outlook Express, or Netscape 4.x applications, you can import contacts directly into your address book. Once you've set up a group, you can send an e-mail message to everyone listed using your default mail program.

When you click Create Contacts in the Address Book, you can enter up to five phone numbers for each individual, as well as an e-mail address, work or home address, and Dialpad user ID. If you enter the contact's birthday or other custom date, then the next



Net2Phone's CommCenter includes an Internet answering machine, so you'll never miss an incoming call.

time you log in, a reminder is posted if the date or event falls within 30 days of the current date.

Once a contact's information is entered, click the Call button next to his phone number in the Address Book. That contact's number is dialed automatically. To modify or delete a listing, click the pencil icon, which is located to the right of the contact's phone number.

Making a PC-to-PC Call. To call another PC, make sure the person you're calling is a registered Dialpad user. Next, enter that

individual's contact information, including Dialpad User ID, in your address book. Once your contact is online, the icon next to his name will turn green. To call up his computer, click the green icon. The dialer will launch to initiate the call, and you can start talking when the call is connected.

If you haven't added the contact to your address book, type in their Dialpad user ID in the dialer space you use to enter phone numbers. Then, press Dial to start the call.

Put Dialpad's dialer on your Desktop. If you don't want to go to Dialpad's Web site to make a call, you can download dialer software to your Desktop. Log in to Dialpad's home page, click the products link, then the Learn More link under dialpadbasic. In the right column of the screen, click the dialpadchameleon link. The next screen is a download page for dialpadchameleon. The 880KB file takes about five minutes to download. Once the file is downloaded, the install shield walks you through the installation process and it installs a shortcut on your Desktop.

To dial from your Desktop, click the Dialpad Chameleon shortcut on your Desktop, then enter your user ID and password. You can select the Remember Password box if you don't want to enter your login information each time you dial. Next, click Login and use dialpadchameleon the same way you used the Java applet dialer. To access your online address book, click Directory Services, located on the right side of dialpadchameleon, then Address Book.

Windows XP: Communication Made Simple

If you have experienced frustration with the technology involved in voice- and videoconferencing, get ready for Windows XP. The new software from Microsoft will change the way you think about real-time communication. Forget having to download third-party software to make voice and video calls; Windows XP will turn your computer into an integrated communications center.

Whether you're interested in real-time voice and video, online collaborations,

or instant messaging, they're all combined into a single place on your Desktop called Windows Messenger.

With Windows Messenger, you can talk to friends, family, and co-workers with audio, video, and text messaging. You can even send text messages to cell phones and pagers. With one click, you can start a video session and be face-to-face with family members, no matter how far away they live. Use your Windows Messenger

contact list to see who is online, then contact them via instant messaging, a video call, or by voice.

Windows XP employs a new technology in the way audio and video are processed and transmitted, so sound quality is vastly improved. You will no longer need a headset to get superior audio, and you can use your computer's microphone and speakers to talk in real-time without feedback or noise. ▲

Lots Of Extras, No Cost

While other companies have backed away from offering unlimited PC-to-Phone long distance, Dialpad has stood by its free service. And with extras, such as the address book, changeable skins, Desktop dialer, and birthday reminder service, Dialpad has gone the extra mile. Although IP telephony still suffers from the occasional dropped word or background noise, at its best it's close to cell phone-quality. For something free, that isn't half bad.

In the future, watch for dialpadaccess, a new technology that will let you use your existing phone with VoIP. With the purchase of inexpensive hardware that plugs into your existing broadband service, you'll be able to get low-cost IP telephony, as well as a second phone line complete with a local dedicated 10-digit phone number.

Our Favorites

Dialpad

<http://www.dialpad.com>

MediaRing

<http://www.mediaring.com>

Microsoft NetMeeting

<http://www.microsoft.com/windows/NetMeeting>

Net2Phone

<http://www.net2phone.com>

PhoneFree

<http://www.phonefree.com>

The Best Of The Rest

After looking at one of the top IP telephony products and how it operates, explore your options. We went online and found several other sites that let you make phone calls using your PC at little or no cost. See for yourself what each has to offer.

MediaRing.com

If your best friend moved to Paris and you miss your late-night gabs, stay in touch with free PC-to-PC calls using MediaRing Talk. International and domestic calls are totally free, and the only requirement is your friend's computer needs to run the MediaRing software.

In addition to free PC-to-PC calls, MediaRing gives you free VoizMail, a program that lets you record and send personal voice messages to anyone with an e-mail address, whether they use MediaRing Talk or not.

In addition, MediaRing Talk offers an interesting feature known as knocking. If the person you're calling is offline, MediaRing Talk uses your modem to dial the other party's telephone number a few times and hangs up after a few rings each time. These knocking calls signal the other party's MediaRing Talk software to connect their PC automatically to the Internet. If you don't like the knocking feature, you can disable it.

<http://www.mediaring.com>

Microsoft NetMeeting

NetMeeting is Microsoft's free software that allows videoconferencing and audio

conferencing over the Internet. With NetMeeting you can share real-time video and audio with family and friends.

Using NetMeeting, you can chat via voice or text messages, use a whiteboard to share graphic information, transfer files, and even share applications. With Microsoft's security features, you can make sure that data exchanged between shared programs, transferred files, chat, and the whiteboard are encoded for maximum privacy.

NetMeeting is a free download and is included with Windows 98 and 2000. You'll need at least a 56Kbps or faster modem, ISDN (Integrated Services Digital Network), or LAN (local-area network) connection.

NetMeeting uses Microsoft's MSN Messenger service to locate other NetMeeting users. If you don't have MSN Messenger, download it for free from MSN at <http://messenger.msn.com>.

<http://www.microsoft.com/windows/NetMeeting>



If you want to know when your friends or family are online, use PhoneFree's Friends notification.

Net2Phone

In 1996, Net2Phone launched the first service to let users anywhere in the world place phone calls from their PCs to any telephone at low rates. Today, Net2Phone routes millions of minutes of calls daily over the Internet and has more than 2.5 million active users (accounts containing funds). It's also known for providing some of the highest sound quality of IP telephony carriers.

Free PC-to-Phone domestic calls are limited to five minutes, with additional minutes billed as low as 2 cents for domestic and 3.9 cents for international calls. PC-to-PC calls are unlimited. Using Net2Phone's new CommCenter software, you can call any telephone in the world, and even see when your friends and family are online and ready to talk.

From Net2Phone's Web site, you can build a contact list using the Contact Builder Wizard. Enter the e-mail addresses of friends and family and the system will search to see if they are CommCenter users. If not, you can send them an e-mail inviting them to use Net2Phone's free PC-to-PC service. You can also send instant messages to CommCenter users.

A bonus for Net2Phone users is a free Internet Answering Machine, complete with caller ID. If you only have one phone line, you can use the answering machine to record calls that come in while you're online. If you get a call, a light will flash on your screen, and you can hear the caller's recorded message.

In order to use Net2Phone, your system needs to be running Win95/98/2000/NT, and you'll need a sound card, a microphone, and speakers or a headset. To boost the quality of your calls, it is recommended that you use a headset. Otherwise, you'll hear your own voice coming through your speakers.

<http://www.net2phone.com>

PhoneFree.com

If you are a multimedia hound, PhoneFree may be the perfect service for you. PhoneFree lets you make free PC-to-PC voice and video calls over the Internet to other PhoneFree users.

In addition to free calls, PhoneFree offers video mail, instant messaging, and picture transfers. For distant grandparents who want to see their new grandkids in real-time, PhoneFree's multimedia capabilities are among the best.

After installing the dialer software, invite your friends and family to sign up for the service. When you enter a person's PhoneFree name into your Friends list, an icon representing each person is displayed next to your dialer. Then, whenever someone on your list is online, a green line will glow around the icon next to the dialer. Also, if you get unwanted calls from other users, PhoneFree lets you block those calls.

<http://www.phonefree.com>

It's Your Call

Now you no longer have to dream of making free long-distance phone calls. Your dreams can become a reality using any of the services we explored here. [E]

by Nancy Hendrickson

Send An Electronic Greeting

Use The Internet To Send E-cards For Any Occasion For Free

Electronic greeting cards (e-cards) are artistic, and often animated, greetings that at their best endear your recipients, and at worst, seem cheesy and clog up busy people's Internet time. The good cards, though, are worth the effort. Send them to lovers, friends, family, or even strangers, anyone you might send a Hallmark greeting card to.

Say It With An Electronic Greeting

Traditional cards sent through the mail frequently celebrate a special occasion and show the sender has taken the time to select, buy, and mail a card. E-cards, therefore, have the challenge of matching or surpassing these qualities in a medium (the Internet) that is famous for being fast and not necessarily reflective of effort. E-cards work ideally in addition to gifts or cards you've already sent or as a surprise that says hello in a special way.

Find That Special Greeting

So, where can you find sites that offer a variety of greetings and other gifts to send



online? Start by going to any search engine, such as Google (<http://www.google.com>) or Lycos (<http://www.lycos.com>), and typing greeting cards in the Search box. Or check out any of the sites listed here. Several of these e-card sites rise above most others you may find because of their ease of use, creativity, pizzazz, and humor.

American Greetings.com

American Greetings.com is a vast and rich site, awesome for its offerings, which include such copyrighted material as Dilbert, Shrek, and Pokemon. There is nothing cheesy about the American Greetings site; you'll find great things here.

<http://www.americangreetings.com>

Awesome Cards

This site has a clean and simple interface that's appealing, and its animations are some of the funniest. You can send a virtual kiss, where a pair of red lips comes in close and envelopes the screen. Or send someone a greeting using a cartoon Elvis who winks his eye at the recipient. The music here is so banal, like an automated and syncopated beat on a synthesizer, it may seem campy.

<http://www.awesomecards.com>

Beatgrets

The Beatgrets site may be perhaps the most addictive of the online greeting card sites

because you can send snippets of contemporary music, such as songs by blink-182, Eminem, Barry White, George Winston, Black Uhuru, Jimmy Buffett, the Chieftains, and more with videolike animation. For example, using Blondie's song "Call Me," you can send your message to call in a vivid and colorful way. Sting's "Desert Rose" simply stuns. Soon you'll find yourself sending message after message using Beatgrets.

<http://www.beatgrets.com>

Blue Mountain

Blue Mountain is the first big online greeting site, the original king of the mountain. While it has the muscle of AmericanGreetings.com to compete with, Blue Mountain has its own copyrighted material to offer, such as the poetry of Susan Polis Schutz. There also are 154 sonnets by William Shakespeare here, intertwined by elegant images. This is a nice site, but if the music were as graceful and less generic, then the site would be better.

<http://www.bluemountain.com>

Greeting-Cards.com

The Greeting-Cards.com site is a site where the basics are done well, and it offers a way for your recipient to download the card to keep forever. When you send a card from Greeting-Cards.com, your recipient can view the card online, as with other sites, or download it to keep forever. You can also choose to add flowers or other gifts, for a price, though. Overall, we summed the site up as cute.

<http://www.greeting-cards.com>

Hallmark

One of the popular greeting card retailers, Hallmark, is on the Web offering cards, gifts, and more to customers. When looking for e-greetings, Hallmark.com (<http://www.hallmark.com>) is a good place to start. Once you're at the site, click the E-Cards link near the top of the page. The link may not jump out at you right away because the site is designed to get you to buy paper cards and other goods. Still, the e-cards are nice, if on the conservative side. If you're looking for e-cards with a little more irreverence, go to Hallmark's Shoebox cards (<http://www.shoobox.com>).

<http://www.hallmark.com>

by Christopher Meeks

Our Favorites

American Greetings.com

<http://www.americangreetings.com>

Awesome Cards

<http://www.awesomecards.com>

Beatgrets

<http://www.beatgrets.com>

Blue Mountain

<http://www.bluemountain.com>

Greeting-Cards.com

<http://www.greeting-cards.com>

Get Creative With Free Design Elements

**Spruce Up Your Web Site With Animation,
Applets, Sounds & More**

You've got the basics of your Web site covered. The navigation is clear and intuitive, content is interesting and accurate, and you've programmed all your links and checked them twice. But something is missing... pizzazz, perhaps?

We can help. We've compiled a list of sites offering design and other cool elements that can add some wow to your Web site without costing you a thing. Some of the sites will require you to register before giving you access to the goods, others will ask that you link back to them from your site, and some very laid-back sites make no demands on you at all. From graphics to guest books, animations to applets, you'll find a wealth of great content all at a price that can't be beat—free.

Before we turn you loose in the candy store, here's a cautionary word. Be sure you read the terms of service listed on the sites. Many, though not all, are intended for non-commercial use. If you intend to use a graphic or news feed on a business site, you might need to get an author's express permission and/or pay a fee. Also, when you visit these sites, be prepared to deal with a number of unwanted pop-up windows. In order to pay the bills and continue to offer free services, many free sites are filled with ads that generate multiple pop-ups. They're not only annoying, but they can also make your search that much more difficult as you struggle to keep closing the offending windows.



Such minor annoyances seem a reasonable trade-off for the gems you'll find once you start digging. And all it will cost you is some time.

Graphics & Animations

Hundreds of sites offer free graphics and animated GIFs (Graphics Interchange Format). (An animated GIF is a series of graphics that advance one to the next at a given rate, creating the illusion of movement. Think of the flipbooks you played with as a kid.) Choosing just a few was not an easy task. The good news is many of these sites link to each other, so if you don't find exactly what you're looking for in one place, you can quickly jump

to another. The bad news is the search for the perfect graphic can be addictive. Pack a lunch and be prepared to devote a few hours to previewing and downloading content.

2Cool Animations

Boasting more than 20,000 animated GIFs, backgrounds, and clip art, 2Cool Animations is the first place to stop when you're looking to add movement to your site. From animals to sports, holidays to text messages, just click, save, and add them to your pages. Also included for your use are free site tools that will generate code for Meta tags, pop-up windows, and drop-down menus.

<http://www.gifanimations.com>

Absolutely All Free Clipart

Here you'll find thousands of free images in more than 100 categories, plus links to several other free clip-art sites with tens of thousands of clip-art graphics. You'll find animations, lines, balls, and banners, and the clip art section has subcategories ranging from agriculture to the zodiac. Material is free for any use, public or private.

<http://www.allfree-clipart.com>

CoolGraphics.com

This site offers an extensive selection of animations, clip art, buttons, backgrounds, and more, organized in an easy-to-use gallery. All are completely free, but not to be used commercially without express permission of the artist. The only requirement for use is that you link back to the CoolGraphics site. Check back each day to see a new featured animation.

<http://www.coolgraphics.com>

Creative Connectivity

There's got to be an easier way to make customized banners, buttons, and logos than designing them from scratch, right? There is. Creative Connectivity offers you quick, simple, and free forms for creating logos and buttons, as well as offering links for hundreds of attractive banner backgrounds. In return, the company merely asks that you consider using its aggressively priced hosting and domain registration services.

<http://www.Crecon.com/banners.html>

FreeFoto.com

Download more than 18,000 free (for non-commercial use) photos organized into 40 main sections and more than 600 subheadings. The site excels in images of locations from Europe, the Far East (which includes Australia), and The United Kingdom, although other areas are also represented. Downloadable images are generally 75KB and have surprisingly good quality.

<http://www.freefoto.com>

Free-Graphics.com

With more than 30,000 images, animations (2-D and 3-D), buttons, icons, and more, Free-Graphics.com is one of the largest free graphic sites on the Web. Included on each page are downloading instructions for each platform, which is a nice feature for the novice user. While you're here, be sure to check out the very cool fireworks animations.

<http://www.free-graphics.com>

FreeStockPhotos.com

While clip art and illustrations are Web site graphic staples, sometimes only a photo will give you the look for which you're aiming. The FreeStockPhotos.com site offers hundreds of good-quality photos completely free of charge, even for commercial use. The photos, many of which are nature shots, are all marked with the site's domain name, which may be cropped out as long as there is a credit given in the text of your Web site. You'll also find links to several other sites that offer free photos, including U.S. Government offices, including NASA, NOAA, and the Library of Congress.

<http://www.freestockphotos.com>

Ulead WebUtilities Animations

If you're looking for a holiday animation, you've come to the right place. At this site, you'll find eye-catching animations for birthdays, Mother's Day, Halloween, Christmas, and many other holidays, all free for personal use. When you select an image, a new window opens to show you the full-size animation and give you downloading instructions. While you're on the Ulead site, be sure to select the Free Stuff link and check out the image library with hundreds of free photos to download.

<http://www.webutilities.com/community/gifzone/libraries/default.asp>

Sounds

Adding sound files to Web pages should be done delicately. Sounds that are of poor quality, too loud, or otherwise obtrusive can make



FreeAudioClips.com offers a large selection of MIDI (Musical Instrumental Digital Interface) music files, as well as sound effects, comedy pieces, and other ear-pleasers.

for a very unpleasant experience that sends a user rushing for their volume control, or worse, the Back button on their browser. But sometimes the right sound, whether it's an effect, a theme song, or a bit of conversation, makes a very good page even better. You just might find that perfect sound at one of the following sites.

Flash Kit

If you want to add flash to your site, this is a great resource with a lot of free raw materials, including sounds, images, fonts, tutorials, and features. If you plan to become a frequent visitor, complete the free registration to set up a myFK page to organize your favorites list, then sign up to receive the free newsletter. If you don't find the Flash element you want here, fear not. In the left column is a link to Flash Kit's collection of additional resource links with more than 7,500 links.

<http://www.flashkit.com>

FreeAudioClips.com

At FreeAudioClips.com you'll find everything from a MIDI (Musical Instrumental Digital Interface) version of Gloria Gaynor's disco hit "I Will Survive" to the original Abbott and Costello "Who's On First" routine, yours to download and include on your site. Sounds are organized by category and are easily searchable by keyword and/or file type.

<http://www.freeaudioclips.com>

Music For Web Pages 101

Organized by length of clip and theme (Italian, Hard Rock, Spooky, and so on), the sounds you'll find here are great for setting a mood. The site's owner asks only that you link back to the MFWP101 site in return for using any of the music you find.

<http://www.mfw101.com/freemusic.html>

Applets

Applets are miniature programs (written in Sun's Java programming language, in this case) that can do anything from animating images to providing pop-up site navigation to playing games. The beauty of Java is that programs written in it are cross-browser, as well as cross-platform compatible. While you can certainly learn to create your own applets, you might find it quicker and easier to make use of the myriad that are already out there on the Web, readily available for download. On the following sites you'll find applets aplenty; some provide highly useful functionality while others exist for sheer entertainment value.

Freewarejava.com

Freewarejava.com is a site dedicated to all things Java. With hundreds of applets in categories ranging from chat rooms to slide shows, you're certain to find something to spice up your site. While most of the applets are free for personal use, some do charge a small fee and are clearly labeled as such.

<http://freewarejava.com>

The Java Boutique

On this site, you can display a large database of applets by category, date, name, or visit the Hall of Fame to find the 10 most frequently downloaded applets of all time. The Java Boutique provides great instructions on downloading and installing the applets, as well as a comprehensive troubleshooting guide. If you're not sure where to start, check out the download of the week.

<http://javaboutique.internet.com>

The JavaScript Source

Here's a comprehensive free JavaScript library. The 10 newest scripts are always highlighted on the main page, or you can have these sent to you automatically by

signing up for the site's free newsletter. Newbies should follow the tutorials link for an intermediate-level primer and a quick guide to integrating JavaScript codes into your FrontPage 2000 projects.

<http://javascript.internet.com>

Website Abstraction

This is another great all-purpose Java site. In addition to providing resources for learning and/or improving your own Java skills, you'll also find a section filled with applets, all free for non-commercial use. When you select an applet from the list, you'll see it in action and be given step-by-step instructions on how to download and put it on your own Web page. Those of you in earthquake country will particularly appreciate the rippling image applet.

<http://wsabstract.com/java>

Scripts

Every time you fill out a form on a Web site and receive a response or enter a password-protected site, a script is at work behind the scenes to process the information. Several scripting languages accomplish different goals, from JavaScript (which is embedded directly into HTML [Hypertext Markup Language] pages and is frequently used for creating animations and rollovers) to Perl (CGI [Common Gateway Interface] forms processing, search engines, and so on) and many others. Many programmers are happy to share their scripts and save you the work of building a better mousetrap. You'll find some of the best collections at the following sites.

Dynamic Drive DHTML Code Library

The Dynamic Drive site defines DHTML (Dynamic HTML) as "a new Web technology that enables elements inside your Web page to be dynamic" even after it has loaded. Supported on 4.0 browsers and above, DHTML scripts are most often written in JavaScript, and they can accomplish such things as animation effects (one of the scripts on the site sends leaves blowing across your page), navigation systems, and image slide shows. Scripts are free, but the site authors request that you link back to their sites if you use one.

<http://www.dynamicdrive.com>

GetScripts.com

Outing itself as the most comprehensive and fastest-growing script site on the Web,

Our Favorites

Absolutely All Free Clipart

<http://www.allfree-clipart.com>

Creative Connectivity

<http://www.Crecon.com/banners.html>

Flash Kit

<http://www.flashkit.com>

FreeFoto.com

<http://www.freefoto.com>

The JavaScript Source

<http://javascript.internet.com>

GetScripts.com is indeed a fabulous resource for locating a script in nearly any language. You can browse by language or search for particular functionality. Also readily viewable is a list of the most popular and the hottest scripts.

<http://www.getscripts.com>

HotScripts.com

HotScripts.com is a monster of a site that boasts more than 9,000 resources exceeding 900 categories. The resources are organized by language. Within each language you'll find not only free scripts, but also links to references, online communities, books, software, tips and tutorials, and other related Web sites. The folders on the site are color-coded so you can see what areas have new additions within the last five and 10 days. Additionally, each of the scripts has a visitor rating (using zero to five chili peppers), so you can see what's hot and what's not before trying it yourself.

<http://www.hotscripts.com>

Portal Elements & Add-ons

In the early days of the Web, it was enough to have good content and a professional-looking site. Now, users expect more, such as interactivity, frequently updated content (preferably with something new to look at every day), and information geared specifically to them. Using these kinds of customizable features you can create a portal site, a place where a user starts his surfing day with the information that is most personally relevant and important. We've found some great sites that give you free and easy access to these kinds of features. In most cases, you simply cut and paste some code and

voila! You have instant, up-to-date information for your visitors.

CheapWebTricks.com

Here you'll find links to a formidable selection of free Web add-ons: chat rooms, guest books, polling functionality, free e-mail with your domain, and hit counters are just a few of your options. Be sure to check out the miscellaneous section where you'll find goodies, such as a free daily horoscope and some groovy HTML-based games.

<http://www.cheapwebtricks.com/index.shtml>

Google Free Search

Give your visitors the ability to do a local or full Web search by adding a Google search box to your page. It's a fantastic way to add powerful search capabilities to your Web site without spending the time or money building an engine of your own. In return, Google retains the right to place banner ads at the top of the results page, which is a very fair trade.

<http://services.google.com/sitesearch/express>

htmlGEAR

This Lycos site gives you the ability to add a guest book, create a poll, add rotating text messages, solicit user feedback, and make it easy for users to recommend your site to others with the click of a button. When you select a gear, you're given the ability to see a live example of how it works before downloading. While these elements are all free, you are required to register with Lycos to access them. Stay tuned. More gear options are promised for the future.

<http://htmlgear.lycos.com>

localendar.com

While this site doesn't give you code to add directly to your site, it does let you create a link from your site to an easily-updatable calendar. Localendar.com offers two levels of service depending on the size of your audience, both completely free after you register. The calendars are customizable, and you can set the default to display the current day, week, or month.

<http://www.localendar.com>

MapBlast!

Add up to 25 static maps or a dynamic directions link to your site for free with MapBlast! This is an especially useful add-on

if you have a business or venue to which you want to easily direct people. Higher levels of service are available as a fee-based option.

<http://www.mapblast.com>

Moreover

Moreover gives you the code you need to provide free (for non-commercial use only) dynamic news headlines and stories to your visitors. Once you've chosen the news you want for your site from more than 1,000 categories and integrated the HTML, you'll never have to worry about updating it. The site provides a helpful wizard that walks you through the process of creating your news feed and gives you several customizable design options for displaying it on your site.

<http://www.moreover.com/webmaster>

Weather.com

Go right to the most trusted source and add up-to-the-minute weather information to your site. The inner weather junkie in all of us will love being able to enter a ZIP code to see weather maps, local forecasts, and current weather conditions. Choose from three different displays and cut and paste the HTML code into your page. Registration with weather.com is required.

<http://oap.weather.com/oap/index.html>

Merchant Capabilities

Whether you're setting up a virtual storefront or hawking your wares on eBay, you can make the task much easier by using a service that ensures secure and simple financial transactions. Those we're highlighting have no setup or monthly fees. You pay only for certain transactions, and your customers can use the service for free.

PayPal

Probably the best-known service of this kind, PayPal sends and receives money for online transactions. Three account levels are available: personal, premier, and business. All accounts are free of setup charges, and only the premier and business accounts charge fees for higher levels of service.

Premier and business level accounts let you accept payments directly on your site, and funds of up to \$100,000 are insured against unauthorized transactions.

<http://www.paypal.com>

ProPay

ProPay bills itself as "a better way to accept credit cards." If you expect the majority of payments made to you to be done with a credit card, this system has the advantage that only senders, not the buyers, need to have a ProPay account. They just enter their credit card information and it's processed as any other credit card purchase would be.

If buyers choose to pay with electronic funds, they can do so by becoming ProPay members. As with PayPal, ProPay only charges fees for transactions, not for setting up and maintaining an account. E-commerce has never been easier.

<https://epay.propay.com/index2.html>

General

While the above sites all concentrate mainly on one element (graphics, scripts, add-ons, and other elements), other sites contain so many different things that they cross over several categories. These sites are great places to begin browsing and exploring possibilities for jazzing up your site.

InterNETACTIVE

The free content section of this site provides categorized links to an amazing amount of material you can add to your Web site. Travel guides, encyclopedias, syndicated articles, and educational resources are just a few of the elements gathered here from which to choose.

http://www.dotcom.ca/free_web_tools

TheFreeSite.com

TheFreeSite.com is the place to go for free stuff, including, but not limited to, free elements for your Web pages. You'll find sections for free graphics, sounds, scripts, and miscellaneous Webmaster tools and resources. Within those sections are comprehensive lists of links to different services, some of which have been covered above. There really is no better place to start your search.

<http://www.thefreesite.com>

WebBuilderZone

You'll find a bit of everything at WebBuilderZone. It's a portal that connects you to more than 5,000 free resources to help you build your Web site, including photos, animations, scripts, add-ons, hit counters, and more. You name it; you'll probably find it here.

<http://webbuilderzone.com>

Final Word

While it may be true that the best things in life (and on the Web) are free, there are becoming fewer and fewer instances when *free* means *absolutely no strings attached*. Keep in mind that it's only through the generosity of those who are willing to share their artistic and programming skills that all of these resources are available. If you are asked to link back or give credit when you use something, please do so. This ensures you stay out of legal trouble and that those resources will continue to exist for others to use.

Now that you've seen a good sampling of elements you can use to spice up your site, you've come to the hard part: exercising restraint. Resist the temptation to use too many of these goodies at once, or you'll end up with a confusing, cluttered eyesore nobody will want to visit, much less ever return to. Whether you're adding animations, a theme song, or a stock ticker, remember that less is more. **[E]**

by William Van Winkle

Free Animated GIF Editors

Animated GIFs, when used sparingly, are a nice way to add some interest to your pages. If you can't find exactly what you're looking for and you have some artistic talent, you might try creating your own animations. You'll need to create a series of graphics that produce the illusion of movement when rotated in rapid

succession. Then you can use a program that puts the images together into one file—in essence, the binding on your flipbook (as described earlier in this article). When the file is loaded into a browser, it will cycle through the images and you'll have an animated graphic. There are several freeware or shareware tools

available for download. For Windows and NT operating systems, check out the list at Images Pro.com (<http://www.imagespro.com/programs/GIFanim/0-3.html>). The most popular program for the Mac, called GIFbuilder, can be found at <http://www.amerinfoserv.com/maverick/GIFbuilder.html>. Happy animating! **▲**

Find Storage Space Online

Share, Back Up & Access Your Files Online
Using These Services We Explored



Whether you call it online storage or a virtual hard drive, the ability to save your data to a secure spot on the Internet is useful for anyone on the go or requiring safe data backups. Even better, using online storage is almost always a snap. The best services let you upload and download files easily through your Web browser, or use special software interfaces to drag and drop files to the Internet. A few use third-party software, such as TeamDrive, which treats your online storage like a real hard drive on your Windows system.

There are many reasons to try online storage (several of which we covered in detail back in the April issue of the *Smart Computing Guide To PC Today*), but the most compelling include simple and secure backup; the ability to share files with friends, family, or co-workers in any location; and easy access to your files while you travel.

Easy and simple, yes, but online storage is no longer the fabulous freebie it was just a few months ago. Although hard drive space is still inexpensive for vendors to offer, selling ad space on a virtual drive's Web interface didn't

turn out to be the grand moneymaking scheme many had hoped for. Now that the Internet economy is feeling the pinch (advertising sales online aren't exactly burning up the market), the providers of these free virtual hard drives have also scaled back. Many online storage services now concentrate on the business enterprise market only or have begun charging for the privilege of parking files in their space. Fortunately, some free storage options are still out there—if you know where to look.

Free & Fee-based Storage

It's not difficult to score free storage online. In fact, just about every Internet or e-mail account includes a few free megabytes of space intended for a Web page. In a pinch, this space can be used to store other types of data files, as well. This space usually requires uploading or downloading files via FTP (File Transfer Protocol), which isn't always easy. Online storage sites simplify the process.

At its most basic, online storage accounts give you a form on a Web site that you can use to browse files on your hard drive and then upload to a remote storage area. Once

uploaded, you can access your storage account and see a list of your files from any computer connected to the Web.

At press time, few free storage services remain; foremost among them are Yahoo! Briefcase and MSN File Cabinets. The biggest advantage to making the leap from a free storage service to a fee-based service is more space. Spending a few bucks per month may get you some extras, such as the ability to grab files off the Internet using a Palm device, or the ability to mail files to multiple recipients with one click. For this article, we limited our focus to sites with free services or those that provide a free trial to consumers for up to a month.

E-ttatch

E-ttatch is as much about sending files as it is about storing them. If you enter a list of e-mail addresses of your friends, family, or co-workers, these people are notified by E-ttatch when a file is available for download. The individuals you specified can then connect to the Internet and access the file using their Web browser. The cost isn't cheap, however. After the 30-day free trial you can choose between a version for individuals that costs \$14.95 per month for 500MB of storage or a five-person multiuser account for \$24.95 per month for 1GB of storage, which is more suited to a small office. Additional 500MB blocks cost \$9.95 each.

<http://www.e-ttatch.net>

FilesAnywhere

FilesAnywhere offers the cheapest fee-based storage we found. Start with a free trial of 50MB for a month, then for \$3.95 per month or \$42 per year, you can keep 100MB of data in your virtual hard drive. You can purchase up to 2GB of extra space for \$34.95 per month. The service's e-Send feature lets you send files directly from your Web storage to someone via e-mail. Because not all e-mail software can handle attachments, the e-Link feature sends messages with links to files in your virtual drive. Recipients then click the links to download files at their leisure, and you receive confirmation when the file is accessed.

<http://www.filesanywhere.com>

FreeDrive

FreeDrive offers 5MB of no-frills Web-accessible storage space for free. Upgrade to its SmartDrive plan (65MB for \$4.95 per month or \$40.95 per year) or PowerDrive plan (150MB for \$9.95 per month or \$99.50 per

year) and you'll get all the full-service extras: Access your backups right through your Palm, have FreeDrive burn (copy) your stored contents to a CD you can use as a backup, share your files privately with an unlimited number of people, or create an online photo album. You'll also find the FreeDrive service offered at AceDisk.com (<http://www.acedisk.com>).

<http://www.freedrive.com>

MSN File Cabinets

Anyone with a Microsoft Passport account, which is just about anyone using Hotmail or MSN, has access to their own 30MB of storage at MSN File Cabinets. Creating your storage folders is a bit confusing, however. The site asks you to create a Web site/community even if you're only using it for storage, but from there you can access the Communities page and click My Communities to access the storage folder. Clicking the Files link lets you add or view your stored bits and bytes. Adding files requires using Internet Explorer to access a special management tool for the browser that displays the contents of your hard drive so you can choose the files to upload.

<http://communities.msn.com/filecabinets>

Storage Point

Storage Point's WebDrive makes your 200MB to 1GB of data available from the Windows Desktop using Windows Explorer or via the browser. You can also use a WAP (Wireless Application Protocol)-enabled device, such as a cell phone, to send or delete files. Try the 30-day, 50MB trial version and then upgrade. Prices are on the high side,

TeamDrive

TeamDrive from TeamStream (<http://www.teamstream.com>) is carving out a niche by providing software that most online storage sites can use as an alternative access method. TeamDrive displays your storage site account within Windows Explorer as if were any other drive letter on a network. When multiple people add this drive to their computers, they can all access the same data, even though it's stored on the Internet. Among the virtual sites that support TeamDrive are Xdrive (<http://www.xdrive.com>), My Docs Online (<http://www.mydocsonline.com>), iBackup (<http://www.ibackup.com>), E-attach (<http://www.e-attach.net>), bigVAULT (<http://www.bigvault.com>), and MediaDepot.com (<http://www.mediadepot.com>). ▲

though: \$12.95 per month or \$139.95 per year for 200MB to start, which is about double that of FilesAnywhere. But it does SSL (Secure Sockets Layer)-encrypt data as you transfer it, which makes this an attractive option if you are swapping sensitive or private files.

<http://www.storagepoint.com>

Yahoo! Briefcase

Sign up for a free Yahoo! account and you'll have access to 30MB of free storage at Yahoo! Briefcase. You can access your files using either the Web interface or the optional Yahoo! Drive tool, which must be downloaded and installed separately. Yahoo! Drive makes your online hard drive space appear as a drive letter on your Windows 95/98/Me system. Share files or folders in your briefcase with friends and family (if they have a Yahoo! account), or make files visible to the public by designating a Public folder and handing out a URL (uniform resource locator; Web address) to your storage area. The maximum file size you can upload and store is 5MB.

<http://briefcase.yahoo.com>

Other fee-based sites worth mentioning that don't offer a free trial version for end-users are bigVAULT Storage (<http://www.bigvault.com>), iBackup (<http://www.ibackup.com>), and My Docs Online (<http://www.mydocs.com>). Each has a Web-based interface for accessing files, or will work with TeamDrive (See the "TeamDrive" sidebar).

Another service, MyPlay (<http://www.myplay.com>), is designed for storing multimedia files, such as QuickTime files and MP3s.

Backup Services

Though it may not be obvious, a backup Web site differs from an online storage site in one major respect: It is meant for a complete data backup on a customized schedule, and it only lets you retrieve all the stored data in one big chunk. These services help you make sure your backup routines are done regularly and the files are stored safely.

@Backup

Download and install the @Backup utility on a Windows system and you're ready to do a major backup. This utility lets you pick specific folders and files to include, or you can right-click a file to add it to the regularly scheduled upload using a pop-up menu. The 30-day free trial lets you back up 50MB or less; after that you will pay \$49.95 per year and up based on the amount of space you need. A CD-ROM version of all you data (up to 650MB) is available for \$49.95 including shipping.

<http://www.atbackup.com>

Connected Online Backup

The software behind this service is called Connected TLM, and it's geared toward businesses needing to back up massive amounts of computer data. Support for individual users is found on the Connected FAQ page (<http://www.connected.com/support/faqs>), which includes details telling you where to find the software for your Windows PC. The 30-day trial covers one of two plans: \$6.95 per month for 100MB (the software will default to backing up what's in your My Documents folder) or \$14.95 per month for up to 4GB (this version backs up just about all the data files on your local hard drives unless you say otherwise). Regular incremental backups ensure the archive stays complete.

<http://www.connected.com>

Get More Space

As you can see, storing your files online is an easy process. The difficult part is choosing a service to use. Take a look at the services we explored, try a few out, and start saving and sharing files online. [E]

by **Bonny L. Georgia**

Our Favorites

Connected Online Backup

<http://www.connected.com>

Files Anywhere

<http://www.filesanywhere.com>

FreeDrive

<http://www.freedrive.com>

Storage Point

<http://www.storagepoint.com>

Yahoo! Briefcase

<http://briefcase.yahoo.com>

Top System Utilities

Make Your System More Efficient With Freeware & Shareware Utilities

Windows is the jack of all trades on your computer, combining traditional basic operating system duties with a number of features that make running and maintaining your system a bit easier and more efficient. As any programmer will bemoan to you, however, Windows leaves some handy and even obvious gaps that must be filled with add-on utilities.

Sure, you could buy expensive off-the-shelf applications to deal with Windows' shortcomings, but few users really want to part with cash when the annoying problems are essentially minor. With the Internet and all of its resources at the ready, no one need suffer Windows inequities in silence.

A number of shareware and freeware sites offer the products of professional and amateur programmers willing to direct their skills toward making life a bit easier for the multitude of faceless users. Most of these programs don't come wrapped in a fancy box, but they often get the job done just as well for far cheaper.

We checked around for a selection of applications that adds something useful to the stable of Windows' built-in utilities without presenting steep learning curves or introducing more problems to fix. Some of our favorites are listed below. One of the features these apps have in common is their low price. All of these programs are free for personal use unless otherwise noted. In other

words, you can get something for nothing in this world and make your system run better in the end.

Antivirus. An antivirus program is necessary to keep your computer running smoothly. Check out these sites for the latest software.

Ad-aware 5.5 (Lavasoft)

While Ad-aware's prey doesn't necessarily meet the definition of virus, many users regard it as such. Ad-aware scans your hard drive, memory, and Registry for evidence of spyware, a disparaging name for programs that send information about your computer and browsing habits to advertising companies behind your back. Many spyware programs serve some mildly useful function on the outside without making it clear that using the application comes at a price in lost privacy.

Ad-aware spots programs, such as Comet Cursor, Doubleclick, and TimeSink, and deletes them after obtaining your approval. The application uses a wizard-like interface for working through the scanning and removal process and creates a detailed log file of every action you take. If you like a particular program despite its spyware qualities, you can keep it and continue to use it. The latest version also creates a backup before deleting files so you can reinstall lost programs.

<http://www.lavasoftusa.com>

Antidote For PC Viruses SuperLite (Vintage Solutions)

If you'd like a free "second opinion" on the viral status of your machine, Antidote SuperLite fits the bill. This small program does not even need to be installed on your computer—just download the file and run it. It will not alter your system in any way or leave behind any trace of itself other than the main executable file. You can even leave your current antivirus program loaded on the system. The only hitch is that Antidote SuperLite is limited to detecting viruses. It will let you know if you've got a problem, the type of virus, and the names of infected files, but the program won't be able to disinfect anything. For that, you will need a more full-featured package, such as AVG. Even though its capabilities are limited to throwing up a red alert flag, SuperLite's small size makes it ideal for portable virus checking. The entire



Viruses are a problem all over the world, and there's no reason not to try an international solution.

program will fit on a floppy disk so you can cart it around and test machines that don't have their own antivirus packages or seem to be acting suspicious.

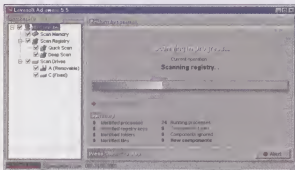
<http://www.vintage-solutions.com>

AVG Anti-Virus System (Grisoft)

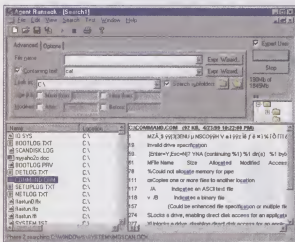
Viruses are a problem all over the world, and there's no reason not to try an international solution. A Czech company, Grisoft, offers a dandy full-featured antivirus program free of charge. The AVG 6.0 Free Edition includes the AVG virus checker, an e-mail scanner, free monthly updates, an automatic update feature, and the AVG Virus Vault to keep infected files away

from where they might harm healthy files. The antivirus system uses heuristic analysis to hunt viruses even if they have not yet been incorporated into the downloadable definition updates, providing decent protection even against the latest viruses. The AVG interface is easy to use, although advanced users might find the program a little simplistic with limited customization potential. Still, as a free virus checker that actually works, this program makes for a worthwhile download. Users wanting to see everything AVG has to offer can buy a professional version with more complex features for \$39.95.

<http://www.grisoft.com>



Ad-aware monitors your system for spyware that sends information about you and your computing habits to advertising companies over the Internet.



When you need to find a particular file, Agent Ransack provides a powerful query-based search tool that lists hits along with text contained in the current selection.

feature, dubbed Window Watcher, checks periodically for the existence of a window with a particular title and sends keyboard commands or runs other tasks. The software authors suggest this is a good way to re-establish a dropped Internet connection.

<http://www.splinterware.com>

File and disk management. If you are looking for a good file manager application, you'll want to try one of the programs listed here.

2xExplorer (Nikolaos Bozinis)

Users who yearn for the old days of potent file manager applications, such as Norton Commander, will appreciate this modern update on Windows Explorer. 2xExplorer takes the standard Windows Explorer features and adds capabilities, such as file filters for viewing certain types of files, complete file date information, and a separable tree view for looking at two contents panes along with the file tree. The program also lets users set up a thumbnail pane to display small versions of selected graphics and Microsoft Office document files to help them find just what they need in a stack of icons. Along with Explorer-type functions, the application throws in an improved text viewer/editor, folder synchronization capabilities, a way to print out folder contents with the click of a button, and more. Advanced users who find themselves wading through folders and folders of files would likely find something to make their lives easier in this full-featured free program.

<http://personalpages.ps.ic.ac.uk/~umeca74>

Agent Ransack (David Vest)

While the Find File command built into Windows performs adequately, it lacks a few extras that anyone who searches for files would appreciate. The key ability Agent Ransack incorporates into an already powerful search tool is a small window that displays contents of files selected in the search results pane. In other words, you not only see the names of the files in the results list, you can also peek inside to get

Automation. Completing tasks while away from your computer is possible if you use the right programs. See how Windows Scheduler features can help you keep on top of things.

Windows Scheduler (Splinterware)

Running backups, checking e-mail, or dialing into an ISP (Internet service provider) are all examples of tasks you might want your computer to do while you're away. This useful automation program responds to the challenge with three main features. First, it includes a simple pop-up task reminder; set up appointments, birthdays, tasks, or whatever you need to remember and Windows Scheduler will remind you at a time you specify. Second, the program can be set to launch other applications at predetermined times, as well as send keyboard commands to those programs. That way, the application not only opens, but also can perform useful work. A third

When it comes to **upgrading** your system or utilities, the Internet has much to offer.

message you digitally sign is not changed en route. The latest version of PGP available at this site integrates well into most popular e-mail clients, including Outlook 2000 and Outlook Express 5.0. Digital encryption becomes a simple matter, with a few clicks being all that is required to open and close the curtain of privacy. PGP free-ware also includes a disk wipe feature that can periodically clean the free space on your hard drive to obscure any trace of old data. A PGPnet feature lets you set up secure communication between two Internet-connected computers.

<http://web.mit.edu/network/pgp.html>

Whisper 32 (Shaun Ivory)

Setting passwords will help keep others from accessing your data, but it will also stop you if you can't remember the password. With all of the Web sites requiring logins just to browse these days, remembering the whole batch of IDs and passwords can be a tall order.

Whisper 32 puts all of your passwords, user names, and their related Web site addresses in one place, and protects the whole lot with a password of its own. Now, you need remember just one super secret word. Whisper 32 will also generate random passwords you can use to register at Web sites.

With a right-click on the site entry, you can copy the password and then paste it on the Web page with nary a keyboard button pressed. The program clears the clipboard on exit, so others won't be able to sneak in that way. Whisper 32 can be set to minimize itself in your Taskbar tray between uses, where it is within easy reach as soon as you need to sign in at the next page.

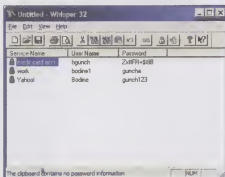
<http://www.ivory.org/whisper.html>

ZoneAlarm (Zone Labs)

If you connect to the Internet via an always-on cable or DSL (Digital Subscriber Line) connection, or if your computer contains sensitive information someone else might go to some trouble to get, a firewall is a good idea. Firewalls keep unauthorized

users from probing your machine through its Internet connection and possibly reading, writing, or changing data on your hard drive.

One of the best for personal use is ZoneAlarm, which is designed to keep out the bad guys without making users jump through a lot of hoops or learn complicated new software rituals. When ZoneAlarm detects anything that might indicate an intrusion, it provides a color-coded alert with advice for keeping your computer secure. An Internet Lock feature automatically shuts off



When you've run out of space on your hard to write down passwords, Whisper 32 gives you a password-protected, easily accessible database for storing login information.

Internet access after a period of inactivity to protect your files when you aren't around. ZoneAlarm also includes e-mail protection to prevent viruses from opening and flying off to infect your friends and business contacts.

<http://www.zonealarm.com>

OS/system upgrade/utilities. When it comes to upgrading your system or utilities, the Internet has much to offer. We looked at various sites that help you update the clock on your PC, make your mouse more efficient, add more space using Desktops, and more.

Dimension 4 (ThinkMan)

Computer clocks aren't always known for their accuracy. As you use your computer throughout the day, the clock can lose time

as the CPU performs more important work than keeping track of each and every second.

Programs, such as Dimension 4, use the convenience of the Internet to automatically set your computer's time to the most accurate atomic clocks available. One of the best features of Dimension 4 is that it can load itself at Windows startup, wait for the computer to go online before it tries to check the time, and then exit after the synchronization is complete.

Users can select a default time server from a built-in list or add something new. Various options let you completely hide the program from view, letting it run unobtrusively in the background as it resets your system clock to the precise second. Once you know what time it really is, you won't want to go back to the old slipshod way.

<http://www.thinkman.com/dimension4>

MouseImp (Oxxo Media)

Popular with users, MouseImp makes Windows just a little bit easier to maneuver. The program includes two main functions.

First, the DirectScroll option means you never have to spin a scroll wheel or click about on a scroll bar again. Click and hold the right mouse button, then move the mouse itself up and down, anywhere in the window. The screen scrolls as if you were dragging a scroll bar. While anyone can appreciate this feature, it comes in especially handy on notebook computers where space is at a premium and there's no scroll wheel in sight.

Second, MouseImp gives you more Desktop space with AutoShrink. Turn AutoShrink on for the programs you use, and MouseImp will automatically "wrap up" windows not in use. Everything but the window's title bar disappears until you run your mouse over it again and the entire window returns.

<http://www.oxxomedia.com/mouseimp>

multiDesk 2001 (TechSuperior)

If your Windows Desktop feels a little small to handle all of the programs you like to have open, why not add a few more Desktops? multiDesk 2001 gives you three

by default, although you can create more. Buttons for the different desktops appear in your system tray. Open different windows in different desktops, then switch between arrangements with a click of the mouse.

It's like having three monitors. You might open programs for personal use in one desktop and business use in another. Keeping one desktop empty gives you a quick way to clear everything. An options screen includes a way to set certain windows to appear in all desktops. For example, your e-mail client might qualify for such treatment. multiDesk can be set to load automatically with Windows and remembers from session to session which programs you've said should always be available.

<http://www.techsuperior.com>

Start/Stop (TFI Technology)

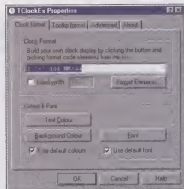
If Windows takes a long time to load on your computer, it might be because a variety of programs are set to start automatically at the beginning of each session. We have often noticed that computers straight off the retail shelves frequently load up a variety of preinstalled programs that most users probably never use or need. Some of these applications might even be invisible, running in the background and wasting resources without doing valuable work.

Start/Stop gives you control over exactly what runs when you start Windows. The program puts together a list of everything that loads automatically so you can decide whether they should continue to run or only run when you specifically ask for them. If it turns out you need a particular program, Start/Stop gives you the option to change your preferences on every reboot.

<http://www.tfi-technology.com/startstop.htm>

TClockEx (Dale Nurdén)

The main drawback to the Windows built-in clock is its inability to display the date along with the time. TClockEx adds this simple but frustratingly absent feature, and does it with



Install TClockEx on your system and your built-in Windows clock will display the date along with the time. Then you will have no excuse for missing a date.

as text and background colors. TClockEx also throws in some extras. A quick click on the time brings up a small calendar in the middle of

customization features that should satisfy any control freak. TClockEx presents a fairly simple interface. For the most part, you can specify exactly how you want the date and time to appear in the taskbar tray. For instance, you can add or remove the day of the week, spell out the month or use numbers, add seconds, flip the day and month around, or use just about any other combination possible. The program also lets you use any font you like, as well

access to a range of useful Windows customization features.

The program has been around in various versions since Windows 95 and receives such widespread acclaim it is curious why Microsoft hasn't simply added these tweaks into Windows itself. Tweak UI builds itself into your Windows Control Panel. Opening the new applet presents a multitabbed dialog box with options to set features, such as the speed at which cascading menus open and whether Internet Explorer should automatically delete entries in the History folder when you log on.

Users who don't recognize the purpose of a particular tweak should probably leave it be; not everything that can be changed should be changed. Others might just fix an annoying little default habit of Windows that's been going on so long you've almost forgotten your frustration.

<http://www.microsoft.com/NTWorkstation/downloads/PowerToys/Networking/NTTweakUI.asp>

Our Favorites

Choosing the top freeware or shareware Web sites for utilities is nearly impossible. So, instead, we are giving you a list of our favorite sites for downloading utilities. Now you can explore and find the utility to match your circumstances.

Download.com

<http://www.download.com>

Jumbo

<http://www.jumbo.com>

Rocketdownload.com

<http://www.rocketdownload.com>

Slaughterhouse

<http://www.slaughterhouse.com/util.html>

WinSite

<http://www.winsite.com/tech>

your screen for easy reference. It's also possible to add CPU usage and memory load indicators next to the date and time.

<http://users.iafrica.com/d/dalalen/tclockex.htm>

Tweak UI (Microsoft)

Even software big guys can put out some useful freeware utilities. Tweak UI provides

WatchCat (Vassili Bourdo)

WatchCat is a small program that can make life better for those who like a nice, clean Desktop. WatchCat spends its time as an icon in your tray.

When activated, WatchCat can minimize any other window to the system tray as well, giving you extra screen space but still keeping the program handy if you need it. It can also hide windows so they do not show up in the Taskbar or the tray. WatchCat's window rules feature lets you set in advance how different types of windows should be handled. For instance, you might set your e-mail program to minimize to the system tray if it isn't accessed for five minutes. Windows can also be automatically closed after a set period of inactivity. Hidden windows can be password protected to keep away prying eyes.

If you'd like to try the program, look for the WatchCat link on the left side of the author's homepage.

<http://vbourdo.e-debri.com>

Diagnostic utilities and optimizers. Do you know what your computer is doing? The programs we look at below will do that and more.

BigFix (BigFix)

BigFix is a good idea that could be worth a look depending on how much you keep

Like Diskmon, Filemon is a good program for users who want to closely monitor information about how Windows uses its file system.

up on bugs, patches, and other system housekeeping news.

BigFix takes over the job of watching the Internet for announcements of software updates, and when one is detected, checks to see whether it applies to your system. If so, BigFix sends the update through the Internet in the form of a "fixlet." Some fixlets take the form of simple messages; others include software patches that are installed automatically on your machine. The program keeps track of what changes have been made to your computer and which problems await the application of new fixlets.

BigFix can be a boon to newer users or users who just don't feel like monitoring the latest reports of bugs, viruses, software conflicts, and privacy holes themselves.

<http://www.bigfix.com>

Diskmon (Sysinternals)

Diskmon is a system monitoring tool that can help advanced users keep track of exactly what their computer is doing at any given moment. In this case, the small application tracks hard drive reads and writes. Every hard drive action is recorded along with the time or duration of the activity, the partition accessed, whether the read or write succeeded, the sector number, and more. A user can also choose to save the log file or just watch it scroll by.

One nice feature is that the program can be minimized to a tray icon that functions as a disk read/write light to let you know whenever the drive is active. A find function lets you search for activity with specific characteristics. Use it to diagnose your hard drive or just learn how frenzied your drive can become.

<http://www.sysinternals.com>

Filemon (Sysinternals)

Like Diskmon, Filemon is a good program for users who want to closely monitor information about how Windows uses its file system. Although the information may be a bit complex for the average user, it is a

Time	Duration	File Name	Operation	Result	Size
1240	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1241	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1242	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1243	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1244	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1245	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1246	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1247	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1248	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1249	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1250	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1251	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1252	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1253	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1254	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1255	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1256	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1257	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1258	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1259	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1260	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1261	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1262	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1263	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1264	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1265	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1266	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1267	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1268	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1269	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1270	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1271	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1272	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1273	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1274	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1275	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1276	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1277	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1278	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1279	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1280	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1281	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1282	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1283	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1284	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1285	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1286	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1287	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1288	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1289	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1290	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1291	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0
1292	0:00:00	C:\WINDOWS\SYSTEM32\USER32.dll	READ	SUCCESS	1390768 Length: 0

Diskmon is the perfect tool for advanced users who want to know everything their hard drive does for diagnostic purposes or simply to satisfy curiosity.

nice tool for those who are curious about how Windows works under the hood.

Any time any application or Windows accesses a file, such as a DLL (dynamic-link library), Filemon notes the activity with a timestamp or a duration, according to your preference. Reads, writes, opens, and deletes are all cataloged, along with the outcome of the access.

Filters let you narrow down the readout to just the type of file accesses or drives you want to monitor. For instance, you might limit the display to only accesses by Microsoft Word in the Windows directory. The output screen can be saved to a log file for later inspection.

<http://www.sysinternals.com>

RAMBooster (J. Pajula)

Windows is not great at managing scarce resources, as anyone might guess were they to watch the amount of free RAM in their

machines dwindle during the average session. It seems to happen no matter how much RAM you have in your system.

Eventually, Windows reports that resources are low and everything begins to slow way down or something worse may happen. RAMBooster alerts you when free RAM is getting low and attempts to find unused RAM and return it to the pool. The result is increased stability and faster operation, or at least the ability to free up enough RAM to let you save data and close programs before the whole operating system decides to freeze up.

RAMBooster uses very little memory itself. Generally the icon sits in the system tray to provide a continuous display of the amount of free RAM. Users can set alarms for critical RAM levels, and in Windows 9x, the program will also indicate CPU usage.

<http://www.sci.fi/~borg/rambooster/index.htm>

A Little Taste Of Everything.

While the above list of free programs should give you a taste of what's out there, a few minutes of browsing through a shareware site will show you that it is far from complete. If some aspect of Windows annoys you or doesn't quite meet your needs, chances are there's someone out there with the gumption and programming skills who has written a small utility to fix the problem. [E]

by Alan Phelps

Online Savings

Know Where To Go For Coupons That Offer Deals On All Kinds Of Goods & Services

Everyone (except maybe the very rich) has clipped coupons at some point in their life, or at least ripped open the blue Val-Pak envelope in the hopes of finding gold between the special offers on carpet cleaning and collector's pieces from the Franklin Mint. Unfortunately, most coupons, especially those from major manufacturers, are marketing gimmicks designed to entice people to try new products. They don't really bring savings; they generate a lot of junk mail, and they fuel the American addiction to consumer goods.

Deals & Coupons For Everyone

These days, coupons have moved online (just as everything else), and there are now scores of sites on the Web that claim to offer special deals and coupons on all sorts of goods and services. And judging by the thousands of posts on some bulletin boards, coupon hunting on the Internet has become an obsession for many. So is it just more of the same gimmickery, or can online coupons bring real savings? We checked out several of the big coupon sites on the Web to find out what's going cheap online.

Coupons.com

Most coupon Web sites offer a few standard features: an h to enter your ZIP code (for local savings), an e-mail newsletter boasting the latest hot deals, and hundreds of coupons organized by categories, such as apparel, electronics, and travel. Coupons.com has all of these standards, but it also includes discounts from local businesses as well as national retailers, such as LensCrafters and OldNavy.com. And unlike most coupon sites, Coupons.com is a little less United States-centric, as it also has Swedish and Canadian affiliate sites.

<http://www.coupons.com/index.asp>

CouponSurfer

In addition to the usual membership perks, such as e-mail alerts and a customizable

"My Coupons" page, CouponSurfer offers useful features, such as the Top Ten Coupons link, which houses the best discounts of the moment. When we checked, Paradigm Wireless was offering a great deal on Nokia cell phones plus service, Gevalia coffee was giving away a free coffee maker, and you could get \$5 off at Proflowers.com. CouponSurfer also organizes its coupons by categories, such as Food & Drink, Health & Wellness, and even As Seen On TV.

<http://www.couponsurfer.com>



DailyDeals.com

DailyDeals.com falls into the discount clearinghouse category of sites: It offers rebates and freebies in addition to traditional coupons. All the usual categories of savings are represented, including unique features, such as a list of coupons that are set to expire soon, and a Free Internet category. When we checked, DailyDeals.com also seemed to feature savings that weren't available on other sites we evaluated, such as free shipping from Dell Small Business, and secret sales at BananaRepublic.com.

<http://www.dailydeals.com>

Dine 4 Less

Food lovers and travelers will appreciate Dine 4 Less' targeted approach towards savings. The site specializes in offering

discounts at local restaurants. Many of the deals are for large chain restaurants, such as Red Lobster and T.G.I. Fridays, but we did find a few independent local restaurants that were offering a free dessert or a couple of dollars off an entrée. Of course, you can search for coupons by area, so if you do a little research on this site and then find a hotel on Mr. Interstate.com (see below), you can easily shave quite a bit of money off your travel expenses.

Dine 4 Less also offers a recipe file that features dishes from some of the restaurants that advertise on the site, a bar section where you can impress a date with a list of the latest jokes, and an online shopping section where you can purchase flowers, candy, and more.

<http://www.dine4less.com>

DotDeals.com

An Internet clearinghouse for every imaginable kind of deal, mostly offered by struggling dot coms, DotDeals.com might be the place to save online. Just visit the home page and you'll see \$5 off plus free shipping from Petsmart.com, \$10 off at Buy.com and TowerRecords.com, 15% off on Hickory Farms, and more. The list goes on and on. DotDeals.com offers the requisite e-mail newsletter highlighting all the new deals, and in addition to organizing its savings by category, DotDeals.com also groups them by genre, such as by coupons, rebates, or freebies.

<http://www.dotdeals.com>

EverSave.com

EverSave.com promises big savings from local stores. But in addition to registering, which means you need to provide your e-mail address and ZIP code, you'll have to fill out a lengthy profile if you want to receive customized coupons. The profile lets you select which categories of coupons you're interested in (Home & Garden, Entertainment, and so on), but you'll also have to provide your age, sex, date of birth, and postal address. EverSave.com also claims to offer special promotions from many big name retailers, including Macys, Home Depot, and Costco, but when we checked, there were few such discounts available. Instead, the big savings were from

discounts offered by local businesses for such things as dry cleaning, limo service, and locksmith services.

<http://www.eversave.com>

H.O.T! Coupons!

H.O.T! Coupons! claims to be the world's largest local coupon source. It's a bit hard to prove, but the site does seem to offer a huge selection of savings that are nicely targeted to your local area. You don't have to join the H.O.T! Coupons Savings Club to see what's on offer in your area, but if you do, you get a personal page that's organized into columns for home, office, and travel coupons. Coupons are sorted by category within the columns, such as Grocery, Auto, and Home Improvement. When we signed up, an auto store in our area was offering a 10% discount on service, as was a local plumber, a bridal store, and a piano shop. If you don't feel like checking your page regularly, H.O.T! Coupons will send you e-mail messages a few times a week, highlighting the latest discounts in your area.

<http://www.hotcoupons.com>

Mr. Interstate.com

Mr. Interstate.com falls into the niche coupon category, as it acts as an umbrella site for hotel and motel coupon sites across the United States. From the home page, click an image map of the United States and scroll until you get to the area you're interested in. Most of the accommodations listed are big chains, but we found some great prices on hotels from California to Maine. If you haven't decided where you're

Our Favorites

Dine 4 Less

<http://www.dine4less.com>

H.O.T! Coupons!

<http://www.hotcoupons.com>

Mr. Interstate.com

<http://www.mrinterstate.com>

MyCoupons.com

<http://www.mycoupons.com>

ValuPage

<http://www.valupage.com>

going yet, Mr. Interstate also contains links to discount car rental, air travel, and vacation planning sites.

<http://www.mrinterstate.com>

MyCoupons.com

MyCoupons.com takes the online savings game to another level by adding community features, such as the MyCouponer of the Week! box, an interactive poll, and ShoppingBoards where users trade tips, coupons, and home economics-related gossip. The site also boasts hundreds of coupons in the usual categories, plus the occasional cigarette coupon—an anomaly for coupon sites, which tend to prohibit tobacco promotions, but perhaps more representative of the real world's shopping habits.

<http://www.mycoupons.com>

New Orleans Coupons

By far the most specific coupon site we found, New Orleans Coupons offers discounts on food, lodging, shopping, and tourist attractions in the Big Easy. As you might guess, the site features far fewer deals than you'll find at one of the general coupon sites, but for those looking to save on a vacation, the savings on steamboat cruises, Cajun restaurants, and more can't be beat.

<http://www.neworleanscoupons.com>

ValuPage

In spite of its simple interface, ValuPage actually offers one of the more sophisticated coupon programs available online. Type in your ZIP code and e-mail address (so you can receive area-specific special offers), and a page appears instructing you to select the grocery store where you'll be redeeming your coupons.

Click the supermarket logo and the site tells you exactly how much you can save at the store you selected. (When we tried the feature out, we found we could save \$36.55 at Cala Foods and \$38.90 at Super Kmart.) You can customize which coupons you want, or get the entire list of coupons at once. Whichever you choose, you'll get a ValuPage that contains a bar code at the top for your grocer to scan and a list of all the special offers at your chosen supermarket.

In order to reduce the risk of fraud, ValuPage uses the Web Bucks system instead of the traditional coupon system. So, for example, your ValuPage may list a 35-cent Web Bucks earning on Entenmann's Cereal Bars, which means if you buy this product, you'll get 35 cents in Web Bucks to spend on whatever you want the next time you shop.

<http://www.valupage.com>

How Much Are You Really Saving?

Just as with traditional paper coupons, it's hard to tell if online coupons really save you money. If you add up the value of all your grocery coupons, you may be saving \$30 on paper, but how many of those products do you really need and how many of them are just the latest snack food that you never would have bought in the first place? Still, there are

some definite benefits to using online coupons:

1. They're a great way to cut down on junk mail. Most sites offer e-mail newsletters, or print-as-you-go coupons, so there's no extra paper.
2. They can promote local business.

Many coupon sites offer tailored deals based on your interests or geographical location, and they

often feature discounts from your local shops and services.

3. If you're savvy, you can take advantage of competition between struggling Web retailers.

Most national coupon sites offer deals from major and minor Web retailers, so you can get discounts, rebates, and even free shipping if you shop online. ▲

Find Those Deals

Whether clipping coupons is an obsession or you just like to save a little on the things you like, you'll want to check out the sites listed here for some good savings. [E]

by Kristina Blachere

(NOTE: For Additional Web sites that contain coupons or other deals, go to the Smart Computing Web site at <http://www.smartcomputing.com/guide/0910/deals>.)

You've Got To Click To Win

The Amazing Maze Of Free Internet Contests

There are as many contests and sweepstakes on the Internet as there are stars in the sky, or so it seems. Exploring that world is like walking down the midway of a carnival. Barkers cry from either side, each with a better offer. You know the milk bottles are weighted, the basketball hoop is too small, the balloons have been deflated just enough to be impervious to the dart. Still . . . out comes the wallet. You've got your eye on that giant purple teddy bear.

So what's wrong with the will to win? Going after something—isn't that what made America great? Look at it this way: If you enter the contests, play the sweepstakes, and register to win, you're in the American tradition. You've got that pioneer spirit that made the wagon trains roll westward and put a man on the moon. So what are you waiting for?

We recently spent some time strolling down the midway of cyberspace and found that contest sites are classified into one of

two groups: gateways (that is, pages that provide links to more sites) and individual contest sites existing on their own. You'll frequently find some overlap. Contests, though, are either sweepstakes, drawings, or games. And the prizes include anything from cash to vacations to dog food.

Sweepstakes and contest sites will generally follow a pattern. You are presented with a lot of tempting possibilities, and you'll have a chance to sign in to make yourself eligible. The registration process usually requires you to submit your name, address, e-mail address, and phone number. You may also need to answer some questions regarding age, income, and so on. Some sites call for very little in the way of registration information; others are more detailed.

Collecting information and submitting it to advertisers in aggregate form is one way contest sites generate the revenue it takes to operate. The other way is by selling advertising opportunities on their site.

Imagine if those carnival barkers, in addition to trying to get you to knock over their milk bottles, were also trying to persuade you to buy a certain book, car, or hotel room. That will give you an even better idea of what it's like to search out contest sites on the Internet.

If privacy is a major concern of yours, you have a couple of options. You can either avoid contest and sweepstakes sites altogether or carefully

read each site's privacy terms to determine whether you wish to proceed. You may have to look a little to find the sponsor's terms, but there will usually be a link if you search.

As with any popular Internet concept, some sites serve as gateways, presenting multiple opportunities. Other sites are accessed directly. When searching, a gateway site quickly gives you more possibilities, but you may need to go through extra registration procedures. And leaving a site when you click a link can get confusing, especially with these kinds of sites, because pop-up ads are generated frequently.



If you like to play the lottery, then check out freebieclub.com, a Web site that features a lottery that you can play up to seven times per day.

Here are a few sites we found as we strolled the cyber-midway.

Cyber-sweeps.com

This is a site that provides multiple opportunities. You can visit current sweepstakes, a trivia contest, sweepstakes that are about to expire, or the archive of past sweepstakes that you can still enter. This site is a little misleading because many of the links go to contests put forward by online retailers, but the possibilities are still intriguing. Prizes include shopping sprees, Slazenger golf balls, a Polar Beat Heart Rate Monitor, and even a 47-inch Clifford The Big Red Dog. It's likely everyone will find something of interest at Cyber-sweeps.

Since the links at Cyber-sweeps take you to other sites, entry requirements vary. Many of the sites call for registration via e-mail. This is a quick and simple way to toss your name into the hat, but you'll probably receive solicitations from the sponsoring site as a result.

<http://www.cyber-sweeps.com>

Double Lotto

This site advertises a chance at winning a \$10 million prize. Matching six numbers



Jackpot.com provides quick access to a variety of contest opportunities.

could bring you a \$1,000 prize. Players are also randomly selected for prizes, such as DVD players and digital cameras.

It takes less than a minute to select seven numbers and submit your e-mail address (longer, of course, if you consult tarot cards or a crystal ball), and the first time, you will have to register by submitting the standard information: name, address, phone number, job category, year of birth, and income level.

<http://www.doublelotto.com>

freebieclub.com

This site is a gateway to a number of free sites, including sweepstakes. It is necessary to be registered to play, which is accomplished by completing an online form. Once you've registered, you become qualified for a \$100 daily prize and a \$25,000 grand prize. In addition, players earn freebiecoins, entitling them to additional prizes. Most players stand a better chance of winning if they visit the site daily.

You'll find a group lottery that can be played up to seven times per day, which is unusual. Most sites have a restriction of once per day.

When you have completed the standard registration process, you then have a chance to indicate what types of companies, if any, from whom you'd like to receive material. It's an extensive list, which, depending upon your point of view, is either a wealth of opportunities or a plague to be avoided. In any case, the final step in the process is to respond to an e-mail message, making you a full-fledged freebieclub.com member.

<http://www.freebieclub.com>

Free-n-Cool

This isn't just a free contest site. In fact, contests make up only a small portion of what's offered, but you can find several contest and sweepstake offers by scrolling down to the lower right side of the page. In the list of the Top 5 Sweeps, we clicked the first, Bay9.com (Win \$1 Million) (<http://www.bay9.com>). Unfor-

tunately, we never actually made it to the contest, because the proliferation of pop-up ads drove us away.

Then we tried Grab.com (<http://www.grab.com>). There was that inviting number again, \$1 million, and we reasoned that if we couldn't win it, maybe we could grab it. Once again, however, the pop-up ads kept us away. It isn't that we could not have reached the contest; we just did not feel like trying. However, every cloud has a silver lining. We won \$50 worth of free body jewelry.



When you visit Grab.com, you can read about the site's latest winner of the \$1 million prize.

Free-n-Cool actually looked like a pretty interesting site, and we plan to visit it again when we are in a more patient mood.

<http://www.freencool.com>

Iwin.com

This is another multi-session site offering casino-style games, a basic lottery, and tournaments for cash prizes. The usual registration process is required. Iwin.com has an attractive layout, not as garish as some of the sites we encountered. It's well organized,

even inviting, and carries enough opportunities to keep the game of chance enthusiast occupied for quite some time.

As you register with Iwin.com, be on guard for preselected solicitations. These are found on about every site, but we found more on Iwin than on any other. They aren't a problem if you uncheck the solicitation, but sometimes there are so many that they can be easy to miss. If you leave the preselected solicitations as is, you'll get e-mail from just about every company in the known universe.

We had a good time playing Rat Race because it reminded us of the game of Ms. Pac Man, which was an old favorite. Our skill has atrophied significantly, however, and we didn't do well enough to earn any icons.

<http://www.iwin.com>

Jackpot.com

A casino-style site offering lots of games of chance, Jackpot.com presents the prize seeker with games galore. From this site, you can play slots, Blackjack, Bingo, Lotto, and more. You also can enter a \$1 million sweepstakes, register for prizes, earn bonus points, and refer friends. Calling itself the "pioneer of game-embedded advertising on the Internet,"

Jackpot.com aims to match computer users with advertisers. There does seem to be a lot available. Click a link and another page appears; we clicked on the \$1 million prize offer (why not go for the big bucks?) and wound up at Bigprizes.com (<http://www.bigprizes.com>).

After giving ourselves a username and password at Bigprizes, we logged in with our e-mail address and found ourselves staring at a typical set of preselected solicitation invitations; that is, we were invited to invite the solicitors to solicit us. It's easy, though, to uncheck those little boxes.

Later, we went to Bigprizes.com to look around more and found that from there, we could go to Jackpot.com, which is where we started out in the first place. Remember when you studied history and learned all the European kings and queens were sort of related? It's a little like that with Internet contests.

<http://www.jackpot.com>

Lottery.com

Many states have lotteries these days, and Lottery.com is a kind of catch-all state lottery site. It provides links to games, winner information, lottery industry news, and prize

raffles. This site bills itself as the "Number one lottery information site on the Web," and it does appear to be a good site if you're inclined to research lotteries. Registration, as usual, is required in order to enter. Links are even provided to sites to "Where a non-winning lottery ticket can still mean cash in your hands."

One link on Lottery.com is Play For Cash, which is advertised as the world's biggest cash game site with more than 5,000 winners every day. Here you are invited to play ordinary games, such as Free Cell, Checkers, Chess, and Solitaire. As a kind of sign-on bonus, you can start with a \$5 credit. Several solicitation boxes are already selected in the registration process. Look at these carefully and uncheck those that don't interest you.

Play For Cash is restricted in some states, including Arizona, Arkansas, Connecticut, Delaware, Florida, Iowa, Louisiana, Maryland, Tennessee, and Vermont. You can still play, but not for the really big prizes. The site classifies games as being either head-to-head cash games (checkers, chess, and the like) or tournament style cash games (card games, word contests, and arcade challenges). There are also puzzle and strategy games (Mine Sweeper and Maze Runner) and sports challenges, such as darts.

<http://www.lottery.com>

LuckySurf.com

You can access LuckySurf.com directly or via TheFreeSite. Its operation is similar to Double Lotto, except LuckySurf offers the chance to win online currency when fewer numbers are matched. Once registered, you can play daily. Just click seven numbers in a grid, then click an advertising banner of your choice, and your numbers are submitted. Before backing out of the site, you may need to answer a question. Part of this game, remember, is information exchange. But who knows?

<http://www.luckysurf.com>

Prize-O-Matic

How would you like to tool around town in a Mercedes? You stand a chance of doing just that according to claims at Prize-O-Matic. Once you have registered at this site, you can earn tickets for prize drawings. You'll earn one ticket each time you log in, for example, with a limit of one ticket per

Our Favorites

Cyber-sweeps.com

<http://www.cyber-sweeps.com>

freebieclub.com

<http://freebieclub.com>

iwin.com

<http://www.iwin.com>

The Birthday Game

<http://www.thebirthdaygame.com>

TheFreeSite.com

<http://thefreesite.com>

day. You can earn additional tickets by referring new members to Prize-O-Matic and by examining bonus offers and special promotions. In other words, this is one of those "get paid for surfing the Web" deals you often see advertised.

Users who don't spend enough time examining the offers, however, may find their tickets invalidated and their membership suspended. Take your time surfing. Besides, you may find something interesting.

<http://www.prizeomatic.com>

The Birthday Game

Since we have to have birthdays, we might as well make the best of them and use them to win something. Winning Upsweeps' \$5 Million Birthday Game would certainly be a reason to celebrate. Actress Teri Garr is pictured on the site's home page above pictures of three previous winners, although her connection to the winners, or to the site, for that matter, isn't clear. To play the game, all you have to do is register. When you click the submit button, you're enrolled, plus you have the chance to activate your Ezsweeps.com Personal Portfolio.

If you choose to activate your portfolio, entering and confirming a password will take you to a number of sweepstakes and prize opportunities. Some are daily drawings, others weekly, and still others are one-time drawings. Prize values and sponsors are listed, and users can click a link to read contest rules if desired. Ezsweeps (<http://www.ezsweeps.com>) will keep track of entries for you in your portfolio.

And speaking of entering, it's simple with the click of a button. If you're interested in entering a lot of contests quickly and simply, this is the site for you. Access it through The Birthday Game site or go directly to Ezsweeps.

<http://www.thebirthdaygame.com>

TheFreeSite

One of the most tasteful of the free site gateways, TheFreeSite.com provides links to a wide variety of possibilities. The Prizes And Contests link takes users to a second page carrying a Sweepstakes And Contests link. On the day we viewed the site, we found 11 options, including a digital hearing aid drawing, a poetry contest, and a lottery. There is a brief description of the contest site, which is useful in determining if you want to explore further.

<http://www.thefreesite.com>

You Have To Play To Win

One word of warning: As we strolled through our cyber-midway, somehow or another we clicked a link that connected us to something called Adpowerzone.com. This link kept automatically generating pop-up ads—everything from vacbag.com to casino game sites to credit card offers. We could click each page and delete it as it started to load in Microsoft Internet Explorer, but we couldn't shut the process off without disconnecting. To go back to our midway analogy, this was like a barker not only yelling at us as we went by, but also getting out of his booth and chasing us.

Still, if you have some time to kill and enjoy entering contests and drawings and playing games of chance, you'll find more opportunities on the Internet than you'll likely be able to try. The cyber-midway is open 24/7, and you don't need to worry about parking, what you're wearing, or getting your fingers sticky from cotton candy.

You'll probably encounter some irritations, and you'll give up a bit of privacy, but you can't win if you don't try. We had hoped to end this article by reporting that people actually can win big money on the Internet because we won some. Unfortunately, our research was not that complete.

But, because we didn't win it, it's still waiting, like that big purple teddy bear, for someone to come along and claim it.

Maybe it will be you! **65**

by Michael McAllister

AGP (Accelerated Graphics Port)—A high-speed graphics port that allows fast communication between the graphics controller and computer. This port runs at least twice as fast as older PCI (Peripheral Component Interconnect) video cards and lets the graphic card directly access the computer's main memory. AGP lets 3-D textures for texture mapping be stored in main memory, while PCI graphics cards let textures be stored only in the smaller video memory.

brick and mortar—Traditional businesses composed of real buildings, as opposed to online ventures. Sometimes used contemptuously, typically when online business is booming.

burn—The process of writing data or information to a CD-ROM.

domain name—The identifying title given to a system of computers, usually including the top domain and all of its subdomains. For example, a domain name, such as *socrates.nd.edu*, indicates that the Socrates network is found at the University of Notre Dame (nd), which is an educational institution (edu).

DTP (desktop publishing)—The use of a computer to produce documents for publication. Desktop publishing software packages range from simple programs that let a user create black-and-white newsletters to elaborate hardware and software setups that can produce multicolored magazines. Desktop publishing documents usually include text as well as graphical elements arranged in an eye-pleasing way.

DVD-RAM—Discs you can write information to many times, not just once like DVD-R (DVD-recordable) drives. These discs, thanks to their huge storage capacity, 2.6GB per side, are likely to eventually replace CD-RW (CD-rewritable) drives. This format is being developed by the DVD consortium and is competing with rival format DVD+RW. The two formats are not compatible, but DVD-RAM drives will probably be backward compatible, with the ability to read DVD-R as well as most forms of CD-ROM discs (CD-R, CD-E, CD-I, and audio CDs).

EPS (encapsulated PostScript)—A graphics file format that includes PostScript commands, which tell a PostScript printer how the file should be printed. PostScript is a language used on advanced graphics and desktop publishing files for better reproduction. An EPS file includes a bit-mapped representation of itself for viewing on-screen but requires a PostScript printer for proper printing. EPS files will ordinarily be followed by the .EPS extension.

parity—An error-checking procedure in which PCs check the accuracy of transmissions. Binary data moves in streams using a series of 0s and 1s. Before the information is sent, the bits are counted. When the total number of bits is odd, the ending transmission should also have an odd number of bits. When the original transmission has an even number of bits, the ending transmission should, too. If there is a difference between the original transmission and the one on the receiving end, it is clear a transmission error occurred. When this happens, the transmission is retried or the system stops and the user receives an error message. There are two types of parity: per-character, called vertical redundancy checking, or block-by-block basis, called longitudinal redundancy checking.

PCL (Printer Control Language)—A command language developed by Hewlett-Packard for its laser and inkjet printers. PCL is a common type of PDL (page description language).

PDF (Portable Document Format)—A file format developed by Adobe that facilitates the conversion of graphics-heavy documents into a form that requires the free Acrobat Reader to read. Creating a PDF file, however, requires the full Acrobat program. PDF is especially useful for mass distributing documents, such as online brochures or software documentation. PDF documents retain their original layouts, so users see them as they were created.

PGP (Pretty Good Privacy)—PGP is a public-key, or asymmetric encryption application. Originally developed by Philip Zimmermann, PGP is available for a wide variety of platforms including Windows, Mac, and Unix. The software creates two keys, a public key and a private key. You can freely send the public key to anyone you want to receive encrypted e-mail from. The private key decrypts any message

encrypted by the corresponding public key. You can download it from Network Associates (<http://www.networkassociates.com>).

plug-in—Scripts, utilities, or instructions that add to the functionality of a program without changing the program's base code. Plug-ins provide a way to add functionality to an application without completely upgrading. Applications that can accept plug-ins often have a built-in way to accommodate them. Two common applications which use plug-ins are Adobe Photoshop and Netscape Navigator.

SOHO (small office/home office)—(Pronounced so-ho). A target computer market consisting of users who work at home or in small businesses.

spyware—A category of software that tracks user behavior without a user's knowledge. Spyware can find its way onto a user's computer in a variety of ways. It may, for instance, manifest itself as part of a virus or Trojan horse. Recently, however, spyware is increasingly finding its way onto user's computer systems through legitimate software and applications. Companies may, for instance, install spyware on a user's computer to track browsing habits and relay the information to advertisers. Companies such as DoubleClick and RealNetworks have come under fire in spyware-related incidents.

TFT (thin film transistor)—Sometimes called active-matrix LCDs (liquid-crystal displays). A type of flat-panel PC screen used on portable computers. Each pixel is controlled by between one and four transistors, making TFT screens faster, brighter, and more colorful than passive-matrix screens, which use a grid of transistors to turn rows and columns of pixels on and off. TFT provides the best resolution of any flat-panel technique but is also the most expensive technology.

Web host—Provides space for, as well as places, a customer's Web page or site on a commercial or frequently used Web server. Just like regular advertising, the price varies from Web host to Web host, with the more popular servers attracting more money.

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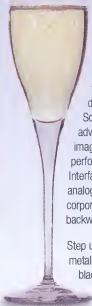
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